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FLOOD CONTROL, POWER AND WATER RESOURCE DEVELOPMENT, TRUCKEE AND CARSON RIVERS, NEV.

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON PUBLIC WORKS UNITED STATES SENATE

EIGHTY-SECOND CONGRESS

SECOND SESSION

ON

PROPOSALS FOR WATER RESOURCE DEVELOPMENT PROJECTS ON THE TRUCKEE AND CARSON RIVERS AND TRIBUTARIES, AND ELECTRIC POWER IN THE STATE OF NEVADA

AUGUST 26 AND 27, 1952

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CONTENTS

Statements, exhibits, etc.: Page

Allen, Robert A., chairman, Public Service Commission of Nevada 8
Barton, Col. A. M., chief engineer, State Reclamation of California, and chairman, Lake Tahoe Water Conference Committee 9, 45
Bliss, Will M., Lake Tahoe Interstate Water Conference Committee 10, 50, 93
Branch, Emory C., Truckee River Improvement and Flood Control Committee 105
Breen, F. R., Nevada State Fish and Game Commission 3, 43
Brussard, William, general manager, Reno Chamber of Commerce (letter) 110
Burns, Col. D. S., division engineer, South Pacific Division, Corps of Engineers, United States Army 19, 39
DePaoli, Harold, chairman, North Truckee Soil Conservation District (letter and statement) 90, 112
Devore, George G., chairman, Truckee-Carson Water Users Committee 7, 68
Dressler, Fred, Carson Valley Water Users Association 61
Edmunds, C., manager, Truckee Public Utility District 113
Fallon, city of (resolution) 110
Fondrin, Hon. D. J., mayor, city of Sparks, Nev 88
Fraser, J. C., district fisheries biologist, California Fish and Game Department 60
Groves, Frank W., director, Nevada Fish and Game Commission (letter and statement) 101
Haug, Col. C. C., district engineer, Sacramento District, Corps of Engineers 21
Hiibel, Phil, project manager, Truckee-Carson irrigation district 91
Holgate, A. E., county engineer, Washoe County 99
Houghton, Samuel B., director of civil defense, Washoe County 99
Hunt, Hollis A., Lahonton Basin area office, United States Bureau of Reclamation 6, 52
Johnson, Harold T., State senator, Seventh District of California 51
Kehlet, George, Lake Tahoe Water Conference Committee 90
Kleppe, Ernest J., member, Board of Washoe County Commissioners 92
Kochis, Frank, Chief of Engineering Division, Sacramento District, Corps of Engineers 28
Lake Tahoe Facing 17, 55
McKenzie, A. M., secretary, Nevada State Planning Board 99
McPhail, Harvey S., Assistant Commissioner, Bureau of Reclamation 5
Malone, Senator George W 1
Mann, Wes, president, Fish for the Truckee, Inc 102
Maughan, W. D., Carson City area office, Bureau of Reclamation 58
Mellin, Richard B., range conservationist, United States Indian Service 99
Notice of public hearing 1
Pollitt, Allen F., assistant supervisor of fish hatcheries, California Fish and Game Department 59
Preliminary report of Lake Tahoe Water Conference committee 10
Settlemeyer, Fred, Carson Valley Water Users Association 63
Shamberger, Hugh A., State engineer of Nevada 8
Smart, R. E., president, the Truckee Chamber of Commerce (letter) 52
Smith, A. M. (Tom), former State engineer of Nevada 7, 89
Smith, Hon. Francis R., mayor of city of Reno, Nev 85, 111
Smitherum, Harry, supervisor, California Division of Water Resources 9
Taylor, Chester C., engineer-manager, Washoe County Water Conservation District 43, 92
Trelease, Thomas J., Fish for the Truckee, Inc 103

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FLOOD CONTROL, POWER AND WATER RESOURCE DEVELOPMENT, TRUCKEE AND CARSON RIVERS, NEV.

TUESDAY, AUGUST 26, 1952

UNITED STATES SENATE
SUBCOMMITTEE ON FLOOD CONTROL,
RIVERS, AND HARBORS OF THE
COMMITTEE ON PUBLIC WORKS,
Reno, Nev.

The subcommittee met at 10 a. m. in the auditorium of the State Building at Reno, Nev., Senator George W. Malone, presiding.

Present: Senator Malone.

Senator MALONE. The meeting will come to order. In opening this hearing, I have word from Senator Chavez, of New Mexico, the chairman of the Public Works Committee, that he is unable to be present, and I am the only member of the committee here now.

I want to submit for the record, to start with, the official notice of the public hearing, dated August 13, 1952, and signed by Dennis Chavez, chairman, Committee on Public Works, United States Senate:

NOTICE OF PUBLIC HEARING

Pursuant to authorization contained in the Flood Control Act of 1938, a survey report for flood control and allied purposes is being prepared by the Corps of Engineers for the Truckee River and tributaries, California and Nevada.

It is expected that the report of the District Engineer, Sacramento Engineer District, will be completed in the near future and forwarded for the consideration of higher authority, after which it will be transmitted to the Congress for its action on the projects reported upon.

In order to have the views of local interests available, a subcommittee of the Committee on Public Works, United States Senate, will hold a public hearing at Reno, Nev., in the Chamber of commerce quarters at 10 a. m. on Tuesday, August 26, 1952.

All interested parties are invited to be present at the above-named time and place, where they will be given full opportunity to express their views relative to any improvement considered in the report and on any other improvement which they believe should be considered.

It is especially desired that consideration be given the flood-control improvements described in the interim report completed by the Corps of Engineers in draft form in September 1946, but is being further studied and coordinated with local interests and with studies being made by the Bureau of Reclamation. All studies will be reviewed at this hearing with a view to determining whether a satisfactory agreement can be reached on the projects which may be recommended for construction and expediting submission of the report to Congress.

Oral statements will be heard, but for accuracy of the record all important facts, and arguments should be submitted in writing, in quadruplicate, as the report of this hearing will be submitted to the Public Works Committee when the 83d Congress convenes.

Senator MALONE. In order to supplement that notice and be sure that no one is overlooked in the area, that might have testimony to offer, I sent out the following form letter to a number of people,

supplementing the list to which the notice signed by Senator Chavez was sent:

Inclosed please find copy of a telegram I have received from Senator Chavez, chairman of the Public Works Committee of the United States Senate, calling a public hearing on plans for the improvement and development of the Truckee River system, to which all interested parties are invited.

The hearing will be held in the auditorium in the State Building, Reno, Nev., at 10 a. m., Tuesday, August 26, 1952.

It is my desire that your organization be represented at the hearing, the objective of which is to end the long delay and move toward the beginning of this highly necessary work as soon as possible.

Senator MALONE. Through 50 years the flood control and irrigation project of the Truckee River and Lake Tahoe has been of the greatest concern to the people of Washoe, Lyon, and Churchill Counties. Surveys have been made by organizations and individuals. On September 20, 1946, the Corps of Engineers completed a preliminary study of the system and submitted a report for study and comment. It has been the custom for the Army engineers to submit a preliminary report and ask for comments from the area included in the survey. It is not necessary that the interested parties agree, and it is not necessary to delay it indefinitely for that purpose. The Army engineers are an agency of Congress, have been so recognized for 75 years, to see whether the benefits received will be greater than the costs. Whenever there are benefits, through power or irrigation, the long-established policy has been to determine whether the cost will be returned without interest. I think our Hoover Dam has set a precedent that when there are benefits, such as salable power, to pay interest on the investment. You will remember that there was 4-percent interest, in the beginning, on the cost of Hoover Dam, the entire investment, except a certain amount allocated to flood control.

It is my belief that there is no need for further surveys in the area, but it is necessary to bring the surveys up to date. It has been the custom about every 3 years since I have been in the Senate, that it consider an omnibus bill on projects the Army engineers have considered favorably and reported to the Congress. Seldom does the Public Works Committee consider a single project.

The committee believes that sufficient field work has been done, therefore we should correlate all the information, submit it to the Public Works Committee of the Senate, and then the Public Works Committee will consider the reports.

If the Army engineers' report can be ready early next year, there will be hearings next year. When the subcommittee submits its report to the committee itself, that committee will write the bill. It may and may not contain all the features mentioned or recommended by the Army engineers, and may contain features not mentioned by the Army engineers. When the full committee marks up the bill, it is submitted to the United States Senate, and again is subject to amendment, and they often are amended. Then it goes to the House, and the House inserts new provisions or deletes some of the existing provisions. All the projects are each considered by a conference committee, in detail. I wanted to explain how this thing is done, because there seems to have been some misunderstanding as to the procedure.

Now I will read the names of the interested agencies that have been notified, and when your organization is called, or your name, please make it known who you are and your position with the organization,

so that the report may be complete, and we also may be able to call you by name. [Reading:]

Harvey McPhail, Assistant Commissioner, Bureau of Reclamation, Department of the Interior, Washington, D. C. (Present.)

Hugh A. Shamberger, representing Governor Charles Russell of Nevada, and also his own office. (Present.)

California Division of Water Resources: A. D. Edmonston, State engineer. (Harry Smitherum, supervisor of the California Division of Water Resources, present.)

Lake Tahoe Water Conference Committee. (Col. A. M. Barton, chief engineer and general manager, Reclamation Board, Sacramento, Calif., present.)

United States Army engineers, South Pacific Division. (Col. D. S. Burns, division engineer, San Francisco, Calif., and Col. C. C. Haug, district engineer, Sacramento, Calif., present, and Mr. Kochis, engineer, present.)

United States Bureau of Reclamation: Hollis Hunt, engineer, Carson City, Nev. (Present.)

Washoe County Water Conservation District: C. C. Taylor, engineer, Reno, Nev. (Present.) Also present, representing the Washoe County Water Conservation District, were: Edward M. Peckham, president of the board; John E. Robinson, attorney; Harry Stoddard, director; and Ernest Kleppe, director.

Truckee-Carson Irrigation District. (Present: John Hannifan, secretary-manager; John Thornton, director; Harold Richards; Phil Hiibel, project manager; and George Miller.)

Sierra Pacific Power Co.: Frank Tracy, manager, and George Devore, engineer. (Both officers present.)

Lake Tahoe Water Users' Association. (Present: Col. A. M. Barton, chairman, Will M. Bliss, Harry O. Comstock, Charles Young, and O. P. Stanley.)

Washoe County commissioners. (Represented by Ernest J. Kleppe.)

Churchill County commissioners. (Not represented.)

Ormsby County commissioners. (Not represented.)

Douglas County commissioners. (Not represented.)

City of Reno. (Represented by Mayor Francis Smith, city manager Emery Branch, city attorney Sam Frankovich, and Raymond M. Smith of Regional Planning Commission of Reno, Sparks, and Washoe County.)

City of Sparks. (Represented by Mayor D. J. Fodrin, City Attorney John G. Spann, and Councilman E. L. Allard.)

Nevada State Planning Board. (Represented by A. M. McKenzie, secretary, and Hugh A. Shamberger, and C. V. Isbell, members.)

United States Office of Indian Affairs. (Represented by R. B. Mellin, range conservationist).

Nevada State Fish and Game Commission.

Mr. F. R. BREEN. The Nevada State Fish and Game Commission is represented by F. R. Breen and Stanley H. Brown, both attorneys. We also represent Washoe Sportsmen's Association, Washoe Fish and Game Association, the Federated Sportsmen of the State of Nevada, Fish for the Truckee, Inc., and Elko County Game Commission. Also present is Mr. Allen F. Pollitt and Mr. Jack Fraser, of the California Fish and Game Commission.

Senator MALONE. Nevada Retail Merchants' Association, Reno, Tate Williams, secretary-manager. Is Mr. Williams here, or anyone representing the association?

(Not represented.)

Senator MALONE. The Washoe County Sportsmen's Association is represented by you, Mr. Breen, along with the Nevada State Fish and Game Commission?

Mr. BREEN. Yes.

Senator MALONE (reading):

Churchill County Chamber of Commerce. (Not represented.)

California State Chamber of Commerce. (Not represented.)

California State Fish and Game Commission. (Represented by Jack Fraser; Allen F. Pollitt, assistant supervisor of fish hatcheries; and Tom Borneman, fish and game patrol warden.)

Carson Valley Water Users' Association.

Mr. GEORGE DEVORE. Fred Settelmeyer, Fred Dressler, Ed Godecke, Graham C. Sanford, John B. Dangberg, Arla Hansen, and Brooks Park. And, in that connection, I also represent the Carson Valley Water Users' Association, the Truckee-Carson Irrigation District, and the Washoe County Conservation District.

Senator MALONE. Who is chairman of the association?

Mr. GEORGE DEVORE. I am.

Senator MALONE (reading):

Truckee River Flood Control Committee. (Present: Joe McDonald, chairman; Emory Branch, and Dr. Vincent Gianella.)
Civil defense. (Represented by Sam Houghton.)
Washoe County Planning Board. (Represented by Raymond M. Smith.)
Washoe County engineer, A. E. Holgate. (Present.)
American Legion. (Not represented.)
Veterans of Foreign Wars, Post 407. (Represented by Clarence Patton.)
Veterans of Foreign Wars, Post 9210. (Also represented by Clarence Patton.)
El Dorado Chamber of Commerce, Placerville, Calif., Wallace Ripley, chairman. (Not represented.)
Individuals: John W. Blum, assemblyman, Washoe County (not present); Louis J. Capurro, assemblyman, Washoe County (not present); Chester Christensen, assemblyman, Washoe County (not present); M. A. Fairchild, assemblyman, Washoe County (not present); Ellis J. Folsom, director of State motor vehicle department, Carson City, Nev. (not present); Sam B. Francovich, assemblyman, Washoe County (not present); Marvin B. Humphrey, assemblyman, Washoe County (not present); Claude H. Smith, editor, Fallon Standard, Fallon, Nev. (not present).

Now, that covers the list specifically notified. Is there anyone else? (The following responded:)

Will M. Bliss, representing Lake Tahoe Interstate Conference Committee, and also appointed by the directors of Lake Tahoe Sierra Chamber of Commerce to represent them.
H. T. Johnson, State senator from Placer County, Calif.
Robert J. Sullivan, manager, and Albert W. Nichols and Harry Gray, directors, of Sparks (Nev.) Chamber of Commerce.
William L. Clark, Reno Chamber of Commerce.
C. Edmonds, general manager of the Truckee Public Utility District, Truckee, Calif.
Nat I. Brown, director of Fernley Chamber of Commerce, Lyon County, Nev.
Harold Depaoli, Wadsworth, Nev., chairman of supervisors, North Truckee Soil Conservation District.
Blake N. Darling, Carson City, Nev., chairman of supervisors, Cason Valley Soil Conservation District.
Edward L. Pine, Reno, Nev., representing Associated General Contractors.
Daniel Slater, United States Fish and Wildlife Service, Sacramento, Calif.
Truckee River Improvement and Flood Control Committee, represented by the following members:

Joseph F. McDonald, chairman, Nevada State Journal
E. C. Branch, vice chairman and secretary, Reno city manager
Elliott R. Cann, Reno city engineer
F. R. Smith, mayor of Reno
C. C. Taylor, water conservation district
Tate Williams, Nevada Retail Merchants' Association
William Brussard, Reno Chamber of Commerce
John Sanford, Reno Evening Gazette
Phil Cowgill, Sierra Pacific Power Co.
George Devore, Sierra Pacific Power Co.
Prof. Vincent P. Gianella, retired (University of Nevada)
Edward L. Pine, Associated General Contractors
Eugene Shephard, United States Weather Bureau
Ernest Kleppe, Washoe County commissioner
Ivan Sack, United States Forest Service
Clyde Houston, Soil Conservation Service
Lester Hilp, property owner

William Sanford, property owner
Charles Mapes, property owner
George Wingfield, Jr., property owner
H. B. Richards, Truckee-Carson Irrigation District
William Cashill, legal
John Robinson, legal
John Spann, Sparks city attorney

Senator MALONE. The first witness we will call this morning will be Harvey McPhail, Assistant Commissioner, Bureau of Reclamation. Mr. McPhail, will you state your name, title, and address?

Mr. MCPHAIL. My name is Harvey S. McPhail, Assistant Commissioner, Bureau of Reclamation, Washington, D. C.

Senator MALONE. Mr. McPhail, I presume you have other members of your staff who might specify in more detail the Bureau of Reclamation surveys and the status of their reports.

Mr. MCPHAIL. We have, Senator, three gentlemen from our Carson City office who are directly engaged in the investigation work on the Carson, Truckee, and Walker Rivers.

Senator MALONE. Will you outline who these men are, and their titles, for the benefit of the record?

Mr. MCPHAIL. I think Mr. Hollis Hunt will be the spokesman for the group, and will present a written statement briefly summarizing the work which the Bureau has done, and be available, as I am, to answer any questions.

Senator MALONE. We hope to hear you later today, Mr. Hunt, or tomorrow if the hearing is not completed today, to round out the testimony. Now, what are the power-generating possibilities, in the opinion of your office, if power can be developed, especially on the Carson and Walker Rivers, with particular regard to the time element, how it is coordinated within the general power picture in the area?

Mr. MCPHAIL. Well, as to the Truckee and Carson Rivers, I don't know whether the work is advanced so we can speak on the Walker. There are three different plans, at the moment, which the Bureau is considering in connection with the Truckee and Carson Rivers. The power possibilities in those three plans include, in the largest one, about 56,000 kilowatts of installed capacity, with an average generation annually of about 325 million kilowatt-hours. The intermediate scheme proposed the development of 44,000 kilowatts, with an annual generation of about 260 million kilowatt-hours. And the third one involves an installed capacity of 36,000 kilowatts, with an annual production of 145 million kilowatt-hours.

The cost of those has not been determined in detail, but roughly they run about $100 million for the largest scheme, about $75 million for the intermediate, and about $50 million for the last scheme.

Senator MALONE. Is that cost on the development of the power, or on flood-control and irrigation possibilities?

Mr. MCPHAIL. Those involve the irrigation possibilities, also a large measure of flood control. I am sorry I can't answer myself whether they include the total flood-control program that is involved, but I understand it does include the major flood control. Also, there are some new lands included in the largest scheme, with supplemental water for existing lands. The smaller schemes involve supplemental water supplies, but they do not involve new irrigated lands.

Senator MALONE. That includes what rivers, to be specific, and the location?

Mr. McPHAIL. I would prefer you would have Mr. Hunt speak on that, because he is more familiar with the plans than I am.

Senator MALONE. Does this include the three rivers?

Mr. McPHAIL. Two, Truckee and Carson, is all.

Senator MALONE. Now, could you tell us anything about how the generation of this power might be dovetailed or worked into the power supply of the entire watershed, and also the supply of power that is contemplated from Shasta, Folsom, and other developments of the Central Valley project?

Mr. McPHAIL. The way the investigations are set up at the moment, three independent operations, the operations can very materially improve integration with the Central Valley project. Under the facilities now set up they provide about two-thirds annual firm energy, and about one-third is energy of a secondary nature. If integrated with the Central Valley project, practically all the power can be used.

Senator MALONE. Is power contemplated in further development in the Central Valley project?

Mr. McPHAIL. It is contemplated in the Folsom development, and the opportunities are still better as the Central Valley project is expanded.

Senator MALONE. The Folsom Dam is on the American River?

Mr. McPHAIL. Yes.

Senator MALONE. What are the additional developments contemplated?

Mr. McPHAIL. Well, there are a large number of them. The Trinity River development is one of the most important. The development of the upper American River area is one that is particularly important to this area because of the proximity. And, in addition to that, a very large number of possibilities extend from the Feather River on the north to the San Joaquin on the south.

Senator MALONE. The dams contemplated under the Central Valley project will generate power, both firm and secondary?

Mr. McPHAIL. That is correct.

Senator MALONE. And it will be available for the entire area, under the provisions of the Reclamation Act, in accordance with the needs and necessities?

Mr. McPHAIL. That is correct.

Senator MALONE. How long a period of time do you anticipate that the construction of these dams on the rivers mentioned would take?

Mr. McPHAIL. I would like to ask Mr. Hunt to answer that, if he can.

Mr. HOLLIS HUNT. I would say, offhand, 10 years. It would depend on how much money is appropriated each year. Ten to twelve years.

Senator MALONE. Do you have any further statements you would like to make, Mr. McPhail?

Mr. McPHAIL. No; I do not. I anticipate that Mr. Hunt will place in the record his prepared statement, whenever you call upon him as a witness.

Senator MALONE. Do you have a prepared statement?

Mr. McPHAIL. I do not, myself.

Senator MALONE. Thank you, Mr. McPhail.

Mr. F. R. Breen, representing Nevada State Fish and Game Commission, and others.

Mr. BREEN. Could you tell, briefly, if you know, in the different plans that have been submitted what consideration has been given as to the effect of the different projects on the fish life, in both the Truckee and Carson Rivers?

Mr. MCPHAIL. I understand that has been fully considered.

Mr. BREEN. Do you know just what that consideration consisted of?

Mr. MCPHAIL. No; I do not. Mr. Hunt can answer that fully.

Mr. BREEN. Are you familiar with the Lahonton Basin report of 1948?

Mr. MCPHAIL. In a general way, yes.

Mr. BREEN. Is that more or less up to date as far as fish is concerned?

Mr. MCPHAIL. I am afraid I can't answer that. Mr. Hunt would be more familiar with that than I am.

Senator MALONE. Does anyone else have any questions?

Mr. George Devore, representing Sierra Pacific Power Co., and others.

Mr. DEVORE. In July 1950, when you met with the water users' committee in Reno, a statement was made, in connection with the developments proposed, that a bill might be passed whereby Nevada could obtain a portion of the power generated on these streams, similar to that on Boulder Dam; is that correct?

Mr. MCPHAIL. I do not recall it. If the developments considered were authorized under the reclamation law, the requirements of the reclamation law would have to be observed. If the Congress passes any special legislation of any kind, certainly the Bureau of Reclamation would be governed by the legislation.

Senator MALONE. By the way, I wish to introduce Mr. A. M. Smith, commonly known as Tom Smith, formerly State engineer of Nevada, whom I asked to attend here.

Mr. A. M. SMITH. The question I wanted to ask Mr. McPhail was: In the integration suggested with the Central Valley project of the developments on the Truckee and Carson, you made a statement that the power would be firmed up by such integration. Does that contemplate firming up by the construction of steam plants in California?

Mr. MCPHAIL. Not necessarily. Of course, steam plant construction would further aid in that connection, but I was speaking only as to the integration of the hydroelectric facilities.

Senator MALONE. Mr. McPhail, it wouldn't make any difference who furnished this firm power, whether it was furnished by private companies or the Bureau of Reclamation, just that whatever power was necessary would be available; is that correct?

Mr. MCPHAIL. That is correct. No matter where the power came from.

Mr. DEVORE. I think the Pacific Gas & Electric Co. and the California Edison Co., and I believe our own company, the Sierra Pacific Power Co., have many times specified that if steam power was needed they either have transportation facilities available or would construct facilities to take the power where it was needed. Is that true?

Mr. MCPHAIL. The Pacific Gas & Electric Co. has said that.

Senator MALONE. Has the Sierra Pacific Power Co., also?

Mr. McPHAIL. I don't know as they were ever called upon to make that statement.

Mr. DEVORE. I would like to ask Mr. McPhail whether the Bureau has considered these projects from the standpoint principally of power, or flood control, or irrigation.

Mr. McPHAIL. The Bureau of Reclamation considered first the maximum benefits that can arise from the development of the water resources, which includes all the items you speak of.

Senator MALONE. Are there any further questions?

Mr. Robert A. Allen, chairman of the Public Service Commission of the State of Nevada.

Mr. ALLEN. What is the apparent proportion of funds that would be necessary for flood control, for power, and for irrigation? Have you made any segregation of those projects?

Mr. McPHAIL. I think we have, but I am not familiar with that myself. I think Mr. Hunt can answer that question for you.

Senator MALONE. Are there any further questions? I would like to say, before we proceed, that this will be a very informal hearing. Questions will be allowed from any interested party, and anyone who wishes may review their testimony before it is published. Now we will have the State engineer of Nevada, Mr. Hugh A. Shamberger, who also represents Gov. Charles Russell, of Nevada. Will you state your name and position?

Mr. SHAMBERGER. I am Hugh A. Shamberger, State engineer of Nevada. The Governor was sorry he couldn't be here, but he has some other engagements today, and he asked me to represent him at this hearing, knowing I would be here.

I don't believe that at this time I have any specific statement to make. I do want to say, for the office of the State engineer, that we are quite familiar with the work that has been done and the work that is now going on in the area, and agree with you that, following the completion of the present work of the Bureau of Reclamation, we should have enough surveys and basic data upon which to predicate any project. I imagine that the present work being done by the Bureau will probably be the final large undertaking of such nature.

Now, I understand that Mr. Hunt will be able to state the features of the various programs that are being covered in the present surveys, and I think these programs should be evaluated on the basis of the greatest benefit to the people of the area. And the State engineer's office stands ready to give any assistance it can to get this thing going as rapidly as possible. We realize that flood control is a feature important both on the Carson River and the Truckee River, as well as the development of the full resources of these two rivers, including power and irrigation.

I think that is all I have to say at the moment. I may have further comments to make later.

Senator MALONE. Thank you, Mr. Shamberger, and we will count on you making further comments after you have heard the testimony. I want to say that the State engineer's office and the Governor's office have cooperated with our committee completely. Now we have the California Division of Water Resources. Mr. A. D. Edmonston, State engineer, is not here. We will have Mr. Smitherum. Will you come forward and make a statement?

Mr. SMITHERUM. The State engineer of California has no statement to submit at this time. Also, the State engineer of California has not prepared any comments on the Army engineers' report of 1946, in which there are several plans which concern Lake Tahoe water and flood control on the Truckee River. The State engineer of California stands ready to cooperate in every way in the matter of these projects. That is all I have to say.

Senator MALONE. You are familiar with the 1946 report?

Mr. SMITHERUM. Not entirely.

Senator MALONE. The State engineer of California has always cooperated with the State engineer of Nevada?

Mr. SMITHERUM. Yes.

Senator MALONE. And we hope it will continue. The matter under consideration now is the preliminary setup of 1946, particularly. We hope there will be at least another comprehensive report, if not a final report, early next year. Anything you could do to bring the 1946 report to Mr. Edmonston's attention will be appreciated.

Mr. SMITHERUM. I will do that.

Senator MALONE. Thank you. Next we would like to hear from Col. A. M. Barton, chief engineer and general manager of the Reclamation Board of the State of California. They have always cooperated with the State of Nevada.

Colonel BARTON. In my capacity as chief engineer of the State reclamation board I would like to say this in regard to the Corps of Engineers' report of about 1946, if I recall it correctly: Shortly after that, about 2 years later, in 1948, Mr. Will Bliss, who is now a member of the Interstate Lake Tahoe Water Conference Committee, submitted a report for the Tahoe-Sierra Resort Owners' Association. The opinions and decisions expressed in that report do not officially represent the views of the Lake Tahoe Water Conference Committee, but in general I think they do. I have a short written report for your committee, as the chairman of the Interstate Lake Tahoe Water Conference Committee, but I might say this: I have been associated with various problems of flood control some 28 years, on the State reclamation board, in connection with the Corps of Engineers, representing the Federal Government, in carrying out flood control on the Sacramento and San Joaquin Rivers and their tributaries. It has been the reclamation board's job through the years to act as a sort of open forum, where any interested party might air his views in regard to the various problems of flood control. The people are inclined to be emphatic for flood control immediately after some high water which has upset their equilibrium, so to speak, but after things have gotten more or less back to normal they usually forget about it, until the next high water.

Now, in this particular instance, as you well know, there is a menace to the people in the vicinity of Lake Tahoe, the landowners, due to high water, accelerated by high winds. Also, I understand, they have a problem, particularly around Reno, on the Truckee River, where the menace of flood hangs over them, and we understand why you people want to see something done about flood control on the Truckee and Carson Rivers. I understand there are some studies being made by the State engineer of California as to taking water out of Lake Tahoe. And the Lake Tahoe Water Conference Committee,

appointed by the two Governors, in an advisory capacity only, may be very useful as a clearing house, so that a final solution can be placed before the people.

I will be glad to answer any questions which I can.

Senator MALONE. Do you know whether there has been any official report submitted by the Lake Tahoe Water Users Association as to the Army engineers report of 1946?

Colonel BARTON. Until such time as the final report would be brought forth by the Army engineers and the various other entities, the Lake Tahoe Water Conference Committee would not be in a position to make any definite comment, although, as I stated before, the report by Mr. Will Bliss in connection with the Resort Owners Association more or less voices the views of the conference committee, as of this moment.

(The report referred to is as follows:)

PRELIMINARY REPORT OF THE LAKE TAHOE INTERSTATE WATER CONFERENCE COMMITTEE ISSUED AS A PUBLIC SERVICE FOR THE INFORMATION OF INTERESTED TAHOE PROPERTY OWNERS IN THE STATES OF CALIFORNIA AND NEVADA

This preliminary report is distributed by this office for the information of all water users of the States of Nevada and California in the hope that it will provide information for all of our citizens and with the hope that it will extend and improve the interstate relations of our citizens with those of our sister State, California.

CHARLES H. RUSSELL,
Governor of Nevada.

The conference committee, in adopting this report of its chairman, wishes to acknowledge his invaluable aid and the devotion of his time and effort to the protection of Lake Tahoe.

The committee wishes also to acknowledge the very important contributions to this cause made throughout the years by the following persons, all pioneer members of the Lake Tahoe Conference Committee: The late V. S. McClatchy, Henry S. Droste, Henry S. Lyon, Andrew L. Haight and W. S. Bliss.

Members of the Lake Tahoe Interstate Conference Committee:

CALIFORNIA	NEVADA
Harry O. Comstock, Brockway, Calif.	Will M. Bliss, Glenbrook, Nev.
George Kehlet, Meeks Bay, Calif.	George G. Devore, Reno, Nev.
Charles Young, Bijou, Calif.	J. W. Johnson, Fallon, Nev.

THE RECLAMATION BOARD,
STATE OF CALIFORNIA,
Sacramento, Calif., August 4, 1952.

To: Messrs. Harry O. Comstock, George Kehlet, and Charles Young, members of the Lake Tahoe Interstate Water Conference Committee from California.
Messrs. Will M. Bliss, George G. Devore, and J. W. Johnson, members of the Lake Tahoe Interstate Water Conference Committee from Nevada.

GENTLEMEN: Submitted herewith is a historical résumé leading to regulations, now in effect, of Lake Tahoe water surface elevations, together with a brief synopsis of four plans that have been presented to the Lake Tahoe Interstate Water Conference Committee, that include measures for alleviation of damaging high water levels at Lake Tahoe, control of floods on the Truckee and Carson Rivers, and related problems of power development, drainage and irrigation within their respective watersheds.

GENERAL INFORMATION

Lake Tahoe has a water surface area of approximately 193 square miles. Based on a lake elevation of 6,223 feet above sea level, its greatest length is 21.06 miles, its greatest width is 11.88 miles and maximum depth, 1,640 feet.

Slightly more than two-thirds of the lake is within California and the remainder in Nevada.

The outlet of Lake Tahoe is the Truckee River which meanders for about 100 miles in a general northeasternly direction and finally loses itself in Nevada's Pyramid Lake, the surface elevation of which is approximately 2,300 feet below the level of Lake Tahoe.

LAKE OUTLET

Discharges from the lake at all times are controlled by the operation of 17 gates that are installed in a concrete dam located near the lake's outlet in the vicinity of Tahoe City. This dam was completed in 1913 by the United States Reclamation Service to replace a log structure built in the early 1870's by the Donner Lumber & Boom Co. The sill elevation of these gates is 6,219. Their operation, however, is not the sole factor in regulating discharges from Lake Tahoe. A natural rim, composed of hard material whose elevation is approximately 6,223, extends across the outlet channel about 700 feet upstream from the dam, over which waters must pass before discharging through the gates into the Truckee River. Thus, the rim has an important effect on maximum possible lake discharges.

Lake Tahoe, serving in part as a storage reservoir, has a maximum useable capacity of 752,000 acre-feet. Other reservoirs located in the Truckee River Basin, the stored waters of which are utilized for irrigation purposes and the generation of power in Nevada, are Boca Reservoir on the Little Truckee River, with a storage capacity of 40,000 acre-feet, Donner Lake on Donner Creek, with a capacity of 10,000 acre-feet, and Independence Lake on Independence Creek, a tributary of Little Truckee River, with a capacity of 17,500 acre-feet.

Under conditions presently existing, engineering analysis indicates that to adequately serve these Nevada interests, it is essential that a zone of 6.1 feet between extreme low water, elevation 6,223 and extreme high water, elevation 6,229.1, be available in Lake Tahoe and used in conjunction with Lahontan Reservoir, together with power pondage on the Little Truckee River. The average annual evaporation of Lake Tahoe is 38.2 inches, totaling about 382,000 acre-feet, or approximately twice the average annual withdrawals. By reason of existing water rights on the Truckee River, it is impracticable, if not illegal, to fix an extreme low level which would be higher than the natural rim of the lake, which is elevation 6,223.0.

HISTORICAL BACKGROUND RE 1915 FEDERAL COURT DECREE

In 1915, the Federal Government acquired control of the waters of Lake Tahoe under the so-called 1915 decree, which is on record in the Office of the United States Federal Court, San Francisco, in file entitled, "*United States of America* v. *The Truckee General Electric Company* (District Court of the United States in and for the Northern District of California, second division, No. 14861"). The rights and interests of the Lake Tahoe littoral and riparian owners were not determined under this decree.

During years of light precipitation, evaporation and winter withdrawals from Lake Tahoe (permitted under the 1915 decree for power generation on the Truckee River and irrigation storage at Lahontan) have occasionally depleted the storage in Lake Tahoe to such an extent that there has ceased to be sufficient flow from Lake Tahoe to serve the rights and interests of the water users on the Truckee River, with consequent injury to crops, stock, and public health. Requests to permit withdrawal of lake waters by pumping in order to alleviate these shortages in Nevada have been granted on several occasions, and refused on others.

The approximate amount of water pumped from Lake Tahoe in the years indicated is as follows:

	Acre-feet
1924, Aug. 2 to Nov. 7	34,000
1929, Aug. 6 to Dec. 11	33,960
1930, Aug. 21 to Nov. 16	25,080
1934, July 12 to Nov. 10	24,610
Total	117,650

In July 1931, such an appeal was made by Gov. F. W. Balzar, of Nevada, to Gov. James Rolph, Jr., Governor of California, for permission to pump Lake Tahoe water into the Truckee River to relieve the severe drought then prevalent in the State of Nevada. Governor Balzar's request to pump water from Lake

Tahoe was not granted. The undersigned was instructed by Governor Rolph to represent him in this matter, and furthermore, endeavor to find a solution that would end the controversy that had existed for 30 years between the 2 States, over the waters of Lake Tahoe.

THE TRUCKEE RIVER AGREEMENT

The Federal Government was about to execute with Nevada water users a Truckee River agreement to supplement the 1915 decree. The proposed agreement contained provisions objected to by Attorney General Webb on behalf of the State of California, and by other interests, including the Lake Tahoe Protective Association composed of Lake Tahoe property owners. The Secretary of the Interior, on request, delayed execution of the agreement, until the interests referred to could be heard.

At this time the respective Governors of California and Nevada created the Lake Tahoe Interstate Water Conference Committee (as an advisory body) consisting of three representatives from each State, with the undersigned as chairman, to adjust conflicting differences and secure adoption of a mutually satisfactory agreement.

With this objective in view, the conference committee convened on numerous occasions during 1934 at Tahoe City, Sacramento, and San Francisco. Attending these meetings, and participating in the deliberations, were Federal and State officials, engineers, and attorneys, together with numerous representatives of the interests concerned.

The final draft of the agreement, prepared at meetings held in late October 1934, at which D. W. Ross, representing Secretary of the Interior Ickes, was present, received the unanimous approval of the conference committee.

The committee's ultimate endorsement of this agreement was given, with the full realization that no plan could be formulated that would meet the unanimous approval of all interests concerned. The conference committee, after scrupulous consideration, was of the unanimous opinion that the agreement as adopted, would best conserve the general interest with least injury to individuals.

Prior to taking final action relative to the amended agreement, the conference committee, in compliance with the request of Governor Merriam, of California, communicated with such California lake-frontage owners of which they had a record, to ascertain insofar as possible, their views relative to said agreement, particularly with regard to the maximum lake-level provisions.

Replies indicated that on a basis of the 28.7 miles of California lake frontage then in private ownership, 69 percent of these lakeshore owners were in favor of the findings of the conference committee, that provided for a maximum lake level of 6,229.1, and owners representing 9.4 miles, or 31 percent of the then privately owned land on the lakefront in California, were opposed to the measure. Several owners who registered disapproval of the agreement, it was disclosed, had previously disposed of their rights to sue the Federal Government for any damages resulting from high or low lake levels.

In terms of acreage of privately owned lakeshore lands in both California and Nevada, engineering studies revealed that a high lake level of 6,229.1 affected a total of 397.98 acres. A maximum elevation of 6,228 would have affected 379.78 acres of lake frontage in the same category.

Placer County with 6.4 miles of beaches dedicated to public use, through its board of supervisors, approved the modified plan. Eight of the eleven directors of the Lake Tahoe Protective Association also gave their endorsement.

Final execution of the agreement was delayed until 1937, chiefly due to minor adjustments between the Federal Government, the Washoe County Water Conservation District, and the Sierra-Pacific Power Co.

This agreement, having as its parties the United States of America, Truckee-Carson Irrigation District, Washoe County Water Conservation District, and the Sierra-Pacific Power Co., as thus endorsed and executed, provided the following terms and conditions:

"1. The construction of the Boca Reservoir for downstream storage of 40,000 acre-feet, thus restricting the demand for withdrawal of water from the lake for the Washoe County Water Conservation District.

"2. The low level of the lake is fixed at the rim, elevation 6,223.

"3. The high lake level is fixed at 6,229.1 (under the "1915" decree a high level was not fixed, and the Government claimed all storage above elevation 6,229.1.)

"4. Provision for release of water to prevent probable damage from threatened excessive high levels as indicated each year in March and April by snow survey and other data which are to be regularly gathered. (Under the "1915" decree no such provisions or safeguards were provided.)

"5. Reduction of withdrawals in the winter months for power purposes when the lake level reaches certain low elevations.

"6. Relinquishment by the Government of its claimed right to store water in Lake Tahoe above 6,229.1.

"7. Control of the gates at the dam by the Truckee-Carson irrigation district, acting as agent for the United States Government, as provided by the "1915" decree and the Truckee River decree.

"8. Prohibition of diversion of waters from the lake by any change in natural physical conditions at or near the outlet thereof."

It should be noted that neither the State of California and Nevada, nor the littoral owners of property riparian to Lake Tahoe, are parties to this agreement.

SNOW SURVEY FOR FORECASTING OF RUNOFF

"In its origin snow survey was a simple practical thing. It was merely the attempt to determine the water content of a definite area of snow." The Tahoe Basin, with a focal point at Mount Rose Observatory, was a birthplace of western snow survey. Its use has been the forecasting of runoff including the rise of Lake Tahoe. Snow surveying first took the form of measurement of the cubic contents or acre-feet of water in the snow for the entire Tahoe Basin. A percentage or so-called Nevada method was developed after which it was necessary only to maintain a series of measurements carefully taken in the same spot each year or along definitely fixed snow courses. It was definitely determined that a 75 percent snow cover of April 1 assumed approximately equal percentage runoff during the months of April to July, inclusive, after which the streams feeding Lake Tahoe rapidly become low and dependent almost entirely on late summer rains. The rise of Lake Tahoe when corrected for discharge bears the same general relationship. Thus it can be and is rather definitely determined from these snow surveys just what the approximate rise of Lake Tahoe will be in a given season. Protection to shoreline property as against high water can be gained by proper manipulation of the gates in the dam below the rim of the lake.

DAMAGES CREATED BY HIGH LAKE ELEVATIONS AND EXCESSIVE FLOOD RUNOFF ON THE TRUCKEE RIVER

Since 1900, Lake Tahoe elevations have equaled or exceeded elevation 6.229.1 in 7 different years, but only once (1917) since the installation of the present dam and gates. During this same period the lake level reached elevation 6.228.0 24 times. The highest elevation of 6,231.26 was recorded in July 1907, and the minimum of 6.221.79 in December of 1931.

During the 49-year period of streamflow records prior to 1950, there have been two damaging rain floods and three damaging snow-melt floods on the Truckee and Carson Rivers.

Losses resulting from the 1950 flood on the Truckee River in the vicinity of Reno and the Truckee Meadows is estimated by the Corps of Engineers, United States Army, to have totaled $3,153,000.

During 1951, the high-water elevations prevailing at Lake Tahoe, combined with wave action created by high winds, according to estimats made by the Army engineers, caused a damage totaling $200,000 to beach installations, septic tanks, wharves, etc., along its 71-mile shoreline. Some of this loss can doubtless be attributed to lack of information relative to the present maximum legal lake elevation (6,229.1 Lake Tahoe datum) that may occur.

From a field survey of the lakeshore made in 1930, it was determined that were were 22 piers with decks at elevation 6,230, or less, and 16 landings in connection with piers that were below elevation 6,230.

Last summer the Lake Tahoe Conference Committee, in an effort directed toward the alleviation of these damages, issued a warning that all structures on the shores of Lake Tahoe should be placed well above elevation 6,229.1, Lake Tahoe datum. This warning was forwarded to postmasters, newspapers, resort and lake-frontage owners, in the Tahoe area.

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VARIOUS PLANS FOR UTILIZATION AND CONTROL OF WATERS OF THE TRUCKEE AND CARSON RIVER BASINS. (SEE MAP ATTACHED)

To date, there have been four plans presented before the Lake Tahoe Conference Committee, all of which involve the use of Lake Tahoe as a storage or regulating reservoir, as follows:

1. Corps of Engineers, United States Army.
2. United States Bureau of Reclamation, plan of development for the Washoe project.
3. California Division of Water Resources Study.
4. Truckee-Carson Water Users Committee plan of development.

Plan 1. The Corps of Engineers, United States Army

The Corps of Engineers is carrying on its investigation under specific congressional authority. This proposal was first presented in detail by United States engineers to various public agencies and local interests for comment in September 1946. Numerous conferences and public hearings have been held for consideration of this report.

It is a prerequisite to the adoption by Congress of such reports that interested parties have considered and commented thereon. In this instance many of those to whom this report has been submitted for such action have failed to respond. Mr. Will M. Bliss, chairman of the water-level-study committee of the Lake Tahoe Sierra Association, and Mr. H. F. Droste, secretary of that organization, then also a member of the Lake Tahoe Conference Committee from California, forwarded their reply to the Army engineers on August 7, 1948. Mr. Bliss is also a member of the Lake Tahoe Water Conference Committee from Nevada. The recommendations contained in the above communication were as follows:

"1. We recommend the stabilization of the Lake Tahoe water surface, both low and high, at points to give the most benefit to the property owners on Lake Tahoe and the water users on the Truckee River;

"2. This committee believes and recommends that the high level of the lake should be reduced to 6,228 feet, the water so declared by such reduction stored in some downstream reservoir not yet developed;

"3. This committee further recommends the establishment by court decree of the minimum natural rim of Lake Tahoe at elevation 6223.3 feet, and that the present natural rim or outlet of Lake Tahoe be not disturbed in any manner;

"4. This committee further recommends a study of the feasibility of the installation of pumps at the outlet of Lake Tahoe in front of said natural rim to knock off the crest of high water and act as a standby for pumping water from below the rim in case of acute drought in the future and a necessity for the relief thereof, and the possible infringement of the legal rights of the littoral owners at Lake Tahoe by the installation of said pumps;

"5. This committee further recommends an adjudication of the rights of riparian and other lake front property owners along the shores of Lake Tahoe in California and Nevada."

Your committee believes and recommends that any right for the generation of power by the power interests in California and Nevada that may attach to the water stored between the elevation 6,229.1 and 6,228.0 in Lake Tahoe should follow this water so transferred to some downstream reservoir, have the same priority, and be in the same amount.

The 1946 interim report draft of the Corps of Engineers provides:

"(*a*) Improvement of Lake Tahoe outlet and reduction of maximum stage from 6,229.1 to 6,228.0;

"(*b*) Construction of Prosser Dam and Reservoir to provide 135,000 acre-feet of replacement storage to compensate for lowering storage capacity of Lake Tahoe;

"(*c*) Construction of a diversion dam on Truckee River just above Truckee, and a 500 cubic foot per second capacity diversion conduit therefrom to Prosser Reservoir;

"(*d*) Channel improvement and levees along Truckee River from Reno to Vista (through Truckee Meadows) with 10,000 cubic feet per second capacity, including replacement of existing dams in river;

"(*e*) Modification of operation of Boca Reservoir for flood storage."

The first cost of these improvements was estimated to be $13,360,000, of which $12,498,000 would be borne by the Federal Government, and $862,000 by "Local interests."

Many of the above items have been subsequently reinvestigated by the Corps of Engineers, and costs thereon reestimated so that as of May 1951 the cost of this project was found to be in excess of $19,000,000. Furthermore, partial appraisal of the "benefits" by the Corps of Engineers on a current basis indicates that due to such increase in costs, the economic justification of the project may now be in jeopardy.

Alternate plans that have been studied by the Corps of Engineers, United States Army, are as follows:

Diversion from Truckee River below Iceland, and storage in an offchannel reservoir in Lemmon Valley, north of Reno, Nev.;

Diversion from Truckee River below Iceland, and storage in an offchannel reservoir in Washoe Valley, south of Reno;

Storage in Stampede Valley on Little Truckee River;

Storage on Truckee River by construction of a dam at the Dukes site just below the mouth of Prosser Creek; and

Storage on Truckee River by construction of a dam near Lawton, Nev., west of Reno.

All of these proposals had two objectives in common, namely, the provision of substitute storage space to balance reduction in the storage capacity of Lake Tahoe that would occur if the lowering of the present legal maximum lake level for prevention of attendant damages is to be achieved; and also improvement of the Truckee River channel for control of flood waters through Reno, Nev., and the Truckee Meadows area. In pursuing these studies, the related problems of power development, irrigation, and drainage, were also considered.

Plan 2. United States Bureau of Reclamation, investigation of the Washoe project (presented by E. O. Larson, regional director, United States Bureau of Reclamation, Salt Lake City)

"The Bureau of Reclamation is investigating various plans for further development of the resources of the Truckee and Carson Rivers. The investigation is being conducted in cooperation with the local water users, the Corps of Engineers and other local State and Federal organizations. The Bureau recognizes that continued growth of the area near these streams is dependent to a large degree on additional control and use of available water supplies. This is true not only of the farming areas and cities but also of the outstanding recreational sites such as Lake Tahoe. All of the waters of the two rivers except floodwaters are now appropriated and controlled. The uncontrolled floodwaters become more and more damaging as the area develops. In November 1950 the rampaging Truckee and Carson Rivers caused millions of dollars worth of damage. In Reno alone the damage exceeded $2,000,000.

"The objective of the Bureau's investigations is to develop the best plan for conserving the floodwaters for irrigation, power generation, and other purposes, and at the same time to control flood damage both along the river channels and at Lake Tahoe. To this end various storage possibilities are being explored.

"With a view toward relieving flood damage at Lake Tahoe, the possibility of limiting variations of the lake level elevations from the present 6.1 feet to around 5 feet is being studied. This could be accomplished without drawing the lake below the present rim elevation of 6,223 feet. One plan includes a 4-mile tunnel from Incline Beach on Lake Tahoe to Washoe Valley. From the Washoe end of the tunnel the water would drop through a powerplant and be regulated in Washoe Lake. It could then be released as desired into Truckee River drainage for irrigation near Reno or elsewhere or it could be released into the Carson River for direct use or for storage in the Lahontan Reservoir. Even with this second outlet from Lake Tahoe the present outlet gates could continue to operate and sufficient water could be released to satisfy riparian rights.

"If the Washoe Lake development is a part of the final plan, other storage also would be required to control damaging floods and conserve the water of the two rivers. With adequate storage and with the construction of necessary diversion dams, canals, and appurtenant works, water presently unused would supplement inadequate irrigation supplies on 30,000 acres of land and would provide a full supply to 12,000 acres now unproductive. Drainage could improve the productivity of 40,000 acres. This water could also generate 300,000,000 kilowatt-hours of electrical energy annually. Control of the streams would improve recreational and fish and wildlife values. With these multiple advantages of river development, the Bureau is encouraged in its attempt to find a feasible plan with benefits exceeding the costs by the widest possible margin."

Plan 3. Plan under Study by California Division of Water Resources and Presented by Assemblyman Francis Lindsay of California to the Conference Committee, May 16, 1952

The California Division of Water Resources, in conjunction with individual counties affected, is presently engaged in an investigation of possibilities for diversion of water into, and out of, Lake Tahoe through a 6-mile pressure tunnel from Meeks Bay westerly into the Rubicon River, a tributary of the American River in El Dorado County, Calif. This procedure, if found economically feasible, would be utilized to firm up power development proposed on the American River watershed in California and to divert water into Lake Tahoe in dry years. It is possible that studies now in progress will reveal a balance of draft and inflow from this operation into and out of Lake Tahoe. The plan is presently in the preliminary study stage, and if found justifiable may be coordinated into the statewide water plan now being prepared by California's Division of Water Resources.

Plan 4. Truckee-Carson Water Users Committee suggested Plan of Development (presented by Mr. George G. Devore, Chairman (member of the Lake Tahoe conference committee from Nevada))

"The suggested development by the committee includes in general the plan of development proposed by the Army engineers on the Truckee and Carson Rivers subject to certain modifications as to the regulation of water in the different reservoirs, development of power at Prosser Reservoir, Hirschdale and Floriston, priming of the water supply for Carson Valley, together with other minor changes and supplemented with the development of a reservoir at Stampede Valley on the Little Truckee River and a powerplant connected therewith on the Truckee River above Verdi.

"The general plan includes the following improvements:

"1. Improvement of conditions at the outlet of Lake Tahoe (cleaning channel below dam) which will permit larger releases of water from Lake Tahoe when necessary in order to prevent the high water level exceeding the maximum allowable lake level.

"2. Reduce the high water level of Lake Tahoe from its present elevation of 6,229.1 to an elevation of 6,228.0 or a reduction in the storage capacity of approximately 135,000 acre-feet.

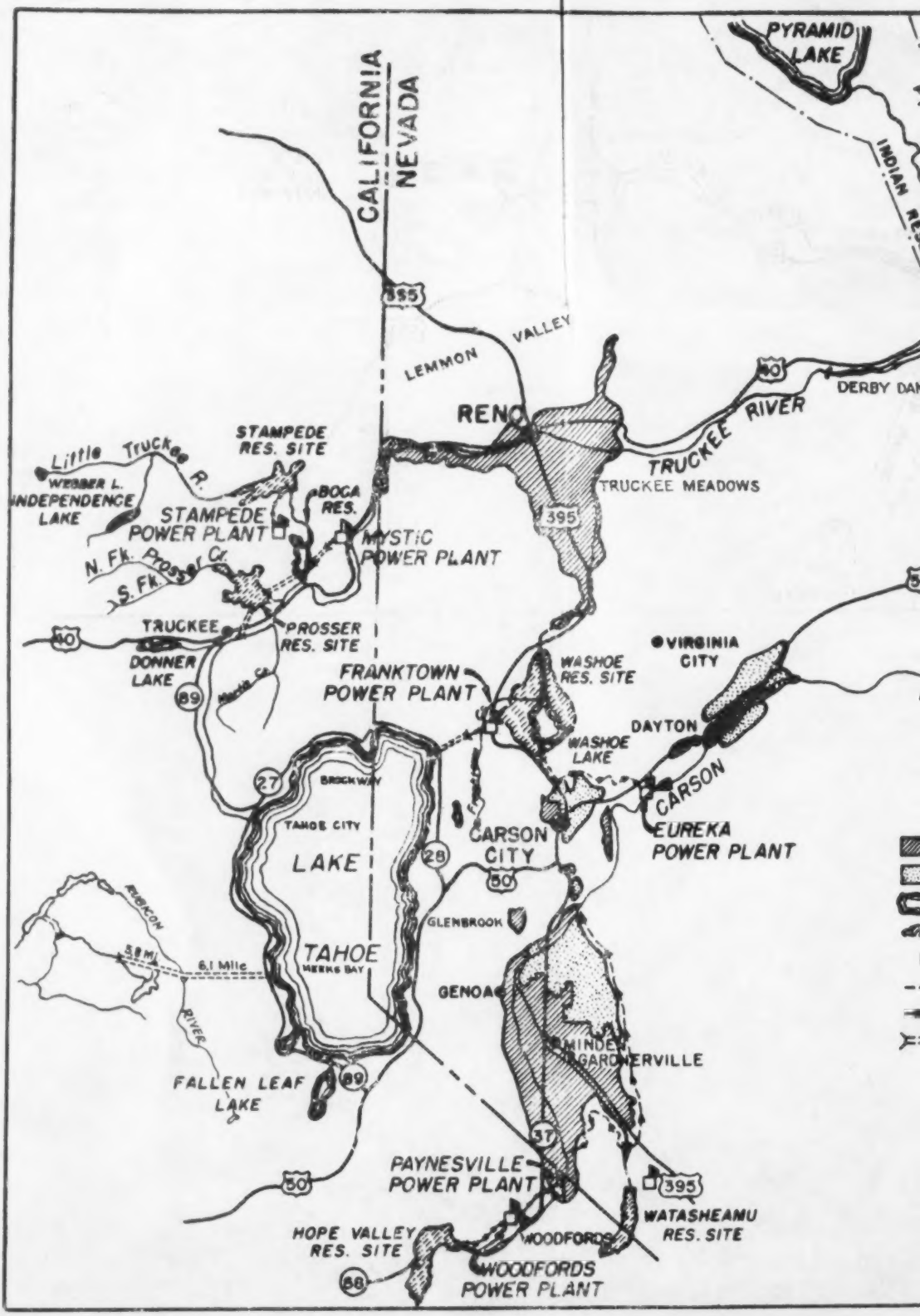
"3. It is suggested that an agreement be entered into between the Lake Tahoe and Nevada interests for the installation of a permanent pumping plant at the outlet of Lake Tahoe to be used under certain conditions and restrictions during periods when a deficiency of water supply exists in the Truckee River after the proposed improvements are constructed and also to be used when necessary in order to prevent the high water level of the lake rising above the new proposed high water level of 6,228.0.

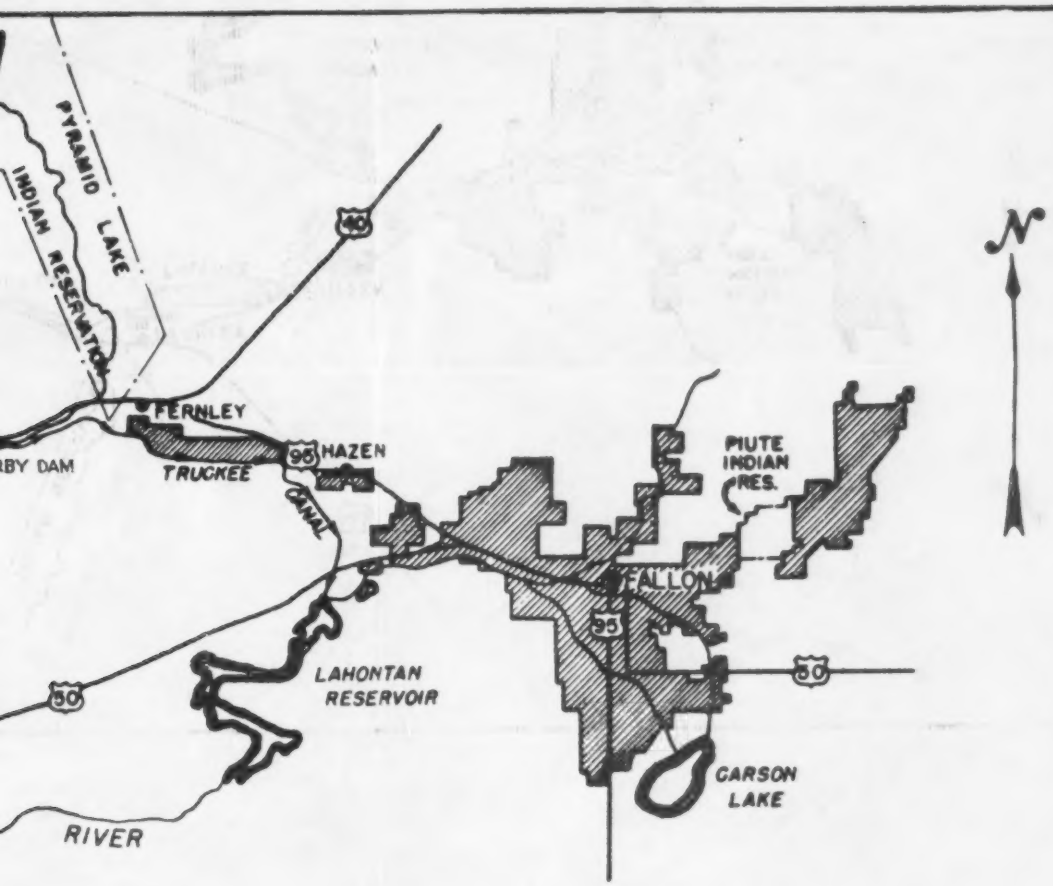
"4. The construction of a diversion dam about one-half mile west of the town of Truckee and a 500 cubic-feet-per-second-capacity pipeline and tunnel from that point to the proposed Prosser Reservoir.

"5. The construction of a reservoir on Prosser Creek with a capacity of 135,000 acre-feet to replace the storage capacity in Lake Tahoe by the reduction of the high water level in the amount of 1.1 foot. The construction of the Prosser Creek Reservoir and the Truckee-Prosser flowline to be contingent upon its economies.

"6. In order to improve the benefits that can be secured in this development, it is proposed that all the water that the Sierra Pacific Power Co. is entitled to use for the generation of power, be diverted into the Prosser flowline and carried to the Prosser Reservoir, and that the Sierra Pacific Power Co. be granted the right to construct a powerplant below Prosser Reservoir and utilize the waters flowing in the Prosser flowline, together with the waters released from Prosser Reservoir for the generation of electric power and that the Sierra Pacific Power Co. pay, as a benefit to the proposed project, a reasonable charge for the use of the facilities necessary in this proposed project.

"7. It is proposed that the Prosser Reservoir powerplant be developed as a peak-load plant and under such conditions it will be necessary to construct a regulating reservoir on the Truckee River at Hirschdale in order to regulate the flow of the Truckee River, Under this condition it is proposed that the Sierra Pacific Power Co. construct a powerplant about one-half mile east of said regulator and it is further proposed that the power company construct another powerplant at Floriston, utilizing the regulated flow and drop in the river between Hirschdale and Floriston.


PYRAMID LAKE
INDIAN RES.
CALIFORNIA
NEVADA
395
LEMMON VALLEY
RENO
50
DERBY DAM
TRUCKEE RIVER
TRUCKEE MEADOWS
STAMPEDE RES. SITE
Little Truckee R.
WEBBER L.
INDEPENDENCE LAKE
STAMPEDE POWER PLANT
BOCA RES.
MYSTIC POWER PLANT
N. Fk. Prosser Cr.
S. Fk.
TRUCKEE
PROSSER RES. SITE
DONNER LAKE
89
FRANKTOWN POWER PLANT
WASHOE RES. SITE
VIRGINIA CITY
DAYTON
WASHOE LAKE
CARSON
EUREKA POWER PLANT
27
BRICKWAY
TAHOE CITY
LAKE
28
CARSON CITY
50
GLENBROOK
TAHOE
MEEKS BAY
GENOA
MINDEN
GARDNERVILLE
RUBICON
5.8 Mi.
6.1 Mile
RIVER
FALLEN LEAF LAKE
37
PAYNESVILLE POWER PLANT
WATASHEAMU RES. SITE
HOPE VALLEY RES. SITE
WOODFORDS
88
WOODFORDS POWER PLANT



EXPLANATION

- Irrigated land.
- Arable land.
- Existing lakes, reservoirs.
- Potential reservoirs.
- Potential hydro power plants–federal.
- Potential canals.
- Potential pipe lines.
- Potential tunnels.

4 0 4 8 12 16

SCALE OF MILES

NOTE:

THIS MAP WAS PREPARED BY THE U.S. BUREAU OF RECLAMATION AND SUBMITTED WITH A SYNOPSIS OF THEIR PLAN TO THE LAKE TAHOE CONFERENCE COMMITTEE. FEATURES OF OTHER PLANS RESUMED IN ATTACHED MEMO HAVE BEEN SUPERIMPOSED THEREON.

"8. It is proposed to improve the channel of the Truckee River from Reno to Vista which includes the replacement of certain dams in this area, together with the construction of levees in the lower areas in the Truckee Meadows, and lowering of the reef of the Truckee River at Vista so as to give flood capacity to the channel of the Truckee River through this area as well as to drain certain areas in the lower end of the Truckee Meadows.

"9. The proposed plan on the Carson River includes the construction of a dam at Watasheamu on the Carson River with a capacity of 45,000 acre-feet which will provide flood control on the East Carson River and also provide prime storage in the minimum amount of 20,000 acre-feet for irrigation purposes.

"10. It is proposed that a reservoir with a capacity of 150,000 acre-feet be constructed on the Little Truckee River at Stampede Valley and that a tunnel be constructed to divert such water from the Stampede Reservoir to a point on the Truckee River below Fleish, and there construct a power plant with a capacity of approximately 20,000 kilowatts."

OTHER PROPOSALS AFFECTING LAKE TAHOE

In 1903, James A. Waymire, a San Francisco attorney, proposed to tunnel from a point well below the rim of Lake Tahoe into the Rubicon Branch of the American River. This tunnel was to provide power and ample water for San Francisco.

In 1908, H. P. Baum of the California-Nevada Electric Power Co. advocated a tunnel from Lake Tahoe to Washoe Valley in Nevada for generation of power. Lake Tahoe landowners protested vociferously, in each instance, and both of these projects were abandoned.

All proposals involving revisions or alterations of the natural barrier or rim at the outlet of Lake Tahoe, to permit a greater flow from the lake into the Truckee River, have in the past met with vigorous objections from the littoral owners of Lake Tahoe. These protests have been supported by attorneys general of the State of California, one of whom stated as late as February 24, 1950, "that it does not appear that the State of California would acquiesce in a change of natural conditions as they currently exist at the head of Truckee River."

The position of the Tahoe littoral landowners, in this regard, was clearly enunciated in a resolution of the Lake Tahoe Conference Committee passed at its meeting held September 18, 1934, at Tahoe City, said resolution stating in part, that article XXV, paragraph G, of the Truckee River Agreement should be revised to properly provide for:

"1. No disturbance of natural conditions at the rim at the outlet;

"2. No withdrawal of water from Lake Tahoe, through any other diversion than the present outlet;

"3. No withdrawal of water from Lake Tahoe for irrigation or power by artificial means.

A. M. BARTON,
Chairman, Lake Tahoe Interstate Conference Committee,
Chief Engineer and General Manager, California State Reclamation Board.

Senator MALONE. You stated there is a movement on foot as to using Lake Tahoe water on the west side of the mountains?

Colonel BARTON. Yes. Mr. Smith, who is connected with the engineering staff, is making those studies. I have a very meager knowledge of those matters.

Senator MALONE. Is it the intention to make that a part of this project that the Army engineers are now considering?

Colonel BARTON. Well, I can't say positively, but it is my understanding that that might be integrated into the Central Valley project.

Senator MALONE. I was referring to the Truckee River system.

Colonel BARTON. I beg your pardon.

Senator MALONE. Is it contemplated that the transfer of Lake Tahoe water to the west side was a part of the Army engineers' project?

Colonel BARTON. I believe that is correct. Now, if you would like me to give you a statement, I will simply say that this Lake Tahoe Water Conference Committee consists of three representatives of each State, appointed by the governors of the respective States.

Senator MALONE. And who are the members?

Colonel BARTON. Mr. Harry O. Comstock, of Brockway, Calif., Mr. George Kehlet, of Meeks Bay, Calif., Mr. Charles Young, of Bijou, Calif., Mr. Will M. Bliss, of Glenbrook, Nev., Mr. George T. Devore, Reno, Nev., and James W. Johnson, of Fallon, Nev.

Senator MALONE. I understand this committee is seriously considering taking water to the west side.

Colonel BARTON. We never made a report on it, but a statement from Assemblyman Lindsay, of California——

Senator MALONE. Is he member of this committee?

Colonel BARTON. No.

Senator MALONE. Have you that report?

Colonel BARTON. We have a transcript of his verbal statement. He didn't give us a written statement.

Senator MALONE. Was Mr. Johnson and Mr. Devore present?

Colonel BARTON. Yes.

Senator MALONE. Can you give us a résumé of his report?

Colonel BARTON. I would have to refer to a memorandum that has recently been published.

Senator MALONE. What was the assemblyman's name?

Colonel BARTON. Francis Lindsay. This memorandum of the testimony of Assemblyman Lindsay is as follows:

> The California Division of Water Resources, in conjunction with individual water users affected, is presently engaged in an investigation of possibility of diversion of water into and out of Lake Tahoe through a 6-mile pressure tunnel from Meeks Bay to the Rubicon River, a tributary of the American River, in California. This, if economically feasible, would be utilized for power development in California, and diverting water into Lake Tahoe in dry years. The plan is presently in the preliminary study stage, and, if found justifiable, may be coordinated in the statewide water plan being formulated by California.

I am not familiar with the details.

Senator MALONE. Where would they take the water from Lake Tahoe?

Colonel BARTON. Down to Riverton, under certain conditions.

Senator MALONE. What are the conditions?

Colonel BARTON. I don't know. I am not familiar with the details of the plan.

Senator MALONE. Does anyone have any questions to ask Colonel Barton?

Mr. F. R. BREEN. In considering these matters, what consideration has your office given to the effect on the fish life of the Truckee River?

Colonel BARTON. I will state that the State reclamation board's jurisdiction does not extend to any problems outside of the Sacramento River, San Joaquin River and vicinity. We take no jurisdiction over anything outside of that area, therefore we haven't made any study in that respect.

Mr. BREEN. As far as your State organization is concerned, it has no jurisdiction over this particular problem?

Colonel BARTON. No.

Mr. BREEN. As far as the conference committee is concerned, what jurisdiction has it?

Colonel BARTON. It has no jurisdiction whatsoever. This committee came into being some 18 years ago, as an advisory committee, only; 3 members were appointed by the California governor, and 3

from Nevada. And one of their first duties was implementing, or taking the lead, so to speak, to change certain features in the 1934 decree, which was a rather involved situation. And the committee has continued to function as an advisory committee and an open forum of discussion as to Lake Tahoe and its watershed.

Senator MALONE. That is all, Colonel Barton. I would like to call Col. D. S. Burns. The 1946 report was made under his supervision.

Senator MALONE. Will you state your name and title, Colonel Burns?

Colonel BURNS. Col. D. S. Burns, division engineer, South Pacific Division, Corps of Engineers, United States Army.

Senator MALONE. The particular subject under discussion today is the progress made in the criticisms and suggestions submitted to your office, or to be submitted, and the time element involved, on your 1946 report. First, have you received from the Washoe County Water Conservation District, the Lahonton project, the Sierra Pacific Power Co. or Lake Tahoe Water Users' Association comments on that report, and also suggestions?

Colonel BURNS. No, sir.

Senator MALONE. No official suggestions?

Colonel BURNS. That is right.

Senator MALONE. Is it customary to delay such criticisms and suggestions? This is 1952. What is the time element, generally, in the submission of such criticisms and suggestions, in your experience?

Colonel BURNS. Of course, it depends on several things involved, but I will say that normally it doesn't require the length of time used in this case.

Senator MALONE. I will ask you, is it necessary to receive these comments, or is it just a policy of the Army engineers?

Colonel BURNS. It is not absolutely necessary, but it is our policy to seek the views of interested parties, so we will have their desires in the matter, at the time we formulate our report.

Senator MALONE. In other words, it is helpful and desirable to receive the views of the organizations particularly interested in the area, so you can consider their observations, and, if approved, include them in the final report, and cooperate with them? In that way, those views of local interests are passed on to Congress, and it has them before it when it considers the project?

Colonel BURNS. That is right. All those views of those local interests, whether or not we comply with them entirely, are passed on to Congress, and it has them before it when it considers the project.

Senator MALONE. The policy of your department is to give a reasonable time after the submission of the preliminary report for criticisms and suggestions by interested parties?

Colonel BURNS. Yes, sir. The district engineer to whom the investigation is assigned holds a public hearing, at which time he invites all interested parties to present their views for or against the project. This is during the period of investigation and formulation of the report.

Senator MALONE. Those views are available, are they not?

Colonel BURNS. Yes, sir.

Senator MALONE. When were they first available?

Colonel BURNS. In 1938, as I recall. The preliminary report was completed in 1939. The report was favorable, with the finding that the project appeared to have sufficient merit to warrant a further and more effective study.

Senator MALONE. And another report was submitted in 1946?

Colonel BURNS. That is right. The Chief of Engineers, I believe approximately 3 months after the district engineer had submitted a favorable preliminary report, submitted a report on the scope and cost. However, through the interference of World War II, the project remained more or less quiescent until 1945, when the Chief of Engineers directed that we proceed with what is known as an interim report, which would consider, specifically, the flood-control problem at Lake Tahoe and on the Truckee River below, of course, including Reno and the Truckee Meadows.

Senator MALONE. The procedure is to ask for suggestions, and if they are approved you incorporate such suggestions of the interested organizations in the report to Congress?

Colonel BURNS. Yes, sir. The district engineer, on completion of the report, forwards it to the division engineer, who reviews the report. The division engineer, in turn, submits it to the Chief of Engineers and the Board of Engineers for Rivers and Harbors. These reports are reviewed by both the Board of Engineers of Rivers and Harbors and the Chief of Engineers prior to submission of such reports to the Congress. The Chief of Engineers submits the report, as submitted by the district engineer, including the recommendations of the division engineer, district engineer, and Board of Engineers for Rivers and Harbors to the respective States involved, California and Nevada in this case, for their review and comment, and also to the Bureau of the Budget for their review and also for a statement as to whether the project comes within the program and policy of the President. Upon receipt of the comments of these various agencies, the report is submitted to the Congress, and then the Congress promptly refers it to the Public Works Committee of the Senate or House, depending on which originated the project.

I might go back and say that at the time the report is submitted to the Board of Engineers of Rivers and Harbors public notice is issued by the division engineer, stating that the report was favorable or unfavorable, and advising any interested parties that if they desire to present their views to the Board again, either for or against the project, they are at liberty to do so, if they do so within a period of a month. I might say that as to the comments requested of the Governors of the respective States by the Federal agencies they are allowed 90 days for submitting their comments. Now, upon receipt of these comments, as I said before, the report of the district engineer, together with the views of local interests and the comments of the Governors of the respective States, are submitted to the Congress, and Congress immediately submits them to the Public Works Committee. Then the Public Works Committee of both the House and Senate hold public hearings again, at which parties interested in the project, both for and against, may present their views. Now, sometimes those hearings are held in Washington. Other times, particularly where it is a rather complicated problem and there is great interest in the project, the committees hold hearings out in the field. Now, upon completion of those hearings, if the Public Works Committees of both the House

and the Senate agree that the project is worth while, they so recommend and it is included in the next so-called omnibus river and harbor construction bill. It is then what we call authorized. Of course that doesn't mean that the construction of the project is decided; we still must get the money for it, Congress must appropriate the necessary funds. Again public hearings are held, this time by the Appropriation Committees of both the Senate and the House, and again all interested parties have an opportunity to present their views, both for and against the project.

Senator MALONE. Colonel, the procedure of the Army engineers is that the field engineers of the Sacramento division make an investigation, and when they satisfy themselves that it is a project worthy of recommendation, then it is submitted to the division engineer?

Colonel BURNS. Yes, sir.

Senator MALONE. And he may or may not agree with that report?

Colonel BURNS. Yes. He may return it to the district for further consideration.

Senator MALONE. Then it is submitted, in Washington, to the Chief of Engineers and to the Board of Engineers of Rivers and Harbors, which is entirely independent?

Colonel BURNS. Yes.

Senator MALONE. And it is reviewed by them?

Colonel BURNS. Yes.

Senator MALONE. And then it goes to the Congress, first to the Public Works Committees and then to the Appropriation Committees?

Colonel BURNS. Yes.

Senator MALONE. Now, would you like to proceed with a description of the project embodied in the preliminary report, or would you prefer that we call one of your assistants?

Colonel BURNS. I have with me today Colonel Haug, who is the district engineer, and members of his staff, who are prepared to answer such questions. I would like to say one thing before they start. We definitely recognize that you have a very serious flood problem here, both at Lake Tahoe and on the Truckee River below, and we are definitely sympathetic with the idea of doing something about it.

Senator MALONE. And without further delay?

Colonel BURNS. Without more delay than is necessary.

Colonel HAUG. I have a statement prepared.

Senator MALONE. You may submit it to the committee, and then you can point out your views on the map, and then, if you wish, you can submit the map.

STATEMENT OF COL. C. C. HAUG, DISTRICT ENGINEER, SACRAMENTO DISTRICT, CORPS OF ENGINEERS

Colonel HAUG. This is just a preliminary statement.

1. Congress in the Flood Control Act approved July 28, 1938, authorized and directed the Secretary of War to cause preliminary examinations and surveys for flood control on the Truckee River and tributaries, California and Nevada. The Chief of Engineers assigned the preparation of the report to the district engineer in Sacramento, Calif. The district engineer held a public hearing in Reno, Nev., on September 28, 1938, in order to obtain the desires of local interests and substantial progress was made on the report up to the beginning of World War II at which time further work was suspended. The investigation was reactivated

immediately after the war and the district engineer completed a draft of his proposed report, entitled "Interim Survey Report for Flood Control of Truckee River and Tributaries, California and Nevada" on September 20, 1946. The report essentially covered the high lake level problem at Lake Tahoe and the flood problems along Truckee River and outlined a plan of solution and a description of the incidental benefits that would accrue to power and irrigation uses from the proposed plan. The district engineers flood-control plan was so conceived as to make possible the integration of future power or irrigation developments that might be proposed by either local interests or the United States Bureau of Reclamation. The district engineer's plan for the solution of the basin's flood problems involves the transfer of the top 1.1 feet of existing storage at Lake Tahoe to a new 135,000 acre-foot reservoir to be constructed on Prosser Creek, a tributary of Truckee River; operation of the existing Boca Reservoir on Little Truckee River for flood control as well as for irrigation; the replacement of four existing fixed-crest dams on Truckee River by movable structures; and improvements at the outlet of Lake Tahoe and through Truckee Meadows so as to provide increased channel capacity.

2. The district engineer's report draft was submitted for review and comment to other Federal agencies and to local interests on October 3, 1946. Although comments on the plan have been received from certain of the interested parties, the principal affected interests along Truckee River have not as yet officially transmitted their views to the district engineer. Due to the lack of endorsement of the proposed physical plan by such "key" local interests and because of limited available investigational funds, the district engineer's activities during the past few years have been confined to working with local interests in connection with their consideration of the proposed plan and to cooperating with the United States Bureau of Reclamation in coordinating the plans and programs of the two Federal agencies.

Additional pertinent information follows:

CORPS OF ENGINEERS, UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER,
Sacramento, Calif., September 23, 1952.

Hon. GEORGE W. MALONE,
Member, Public Works Committee, United States Senate,
Reno, Nev.

DEAR SENATOR MALONE: Reference is made to the public hearing over which you presided in Reno, Nev., on August 26–27, 1952, concerning the Corps of Engineers survey report on the Truckee River. During the course of testimony by Colonel Burns, Mr. Frank Kochis, and myself, you requested that certain additional information be submitted to the committee. Accordingly, I am submitting herewith the requested information, in quadruplicate, as follows:

1. Evaporation data for Lake Tahoe.
2. Area and storage capacity of Lake Tahoe.
3. Description of Truckee Meadows channel improvement.
4. Effect of plan proposed in 1946 Truckee River interim survey report draft on November–December 1950 floods.
5. Flood-control operation of existing and proposed reservoirs.
6. Repayment for conservation accomplishments of plan of improvement.
7. Copy letter from California State Division of Fish and Game, dated November 6, 1946.
8. Hydrographs, Lake Tahoe and Truckee River.

I believe that each of the above-listed enclosures is complete in itself and self-explanatory. In addition, I am sending you, under separate cover, a reproducible copy of the exhibit map which we displayed at the hearing.

I hope that this information will complete our presentation, but if there is any further information or data which may be of help to your committee, I shall be pleased to furnish it upon request.

Sincerely yours,

C. C. HAUG,
Colonel, Corps of Engineers, District Engineer.

ENCLOSURE 1

Evaporation data for Lake Tahoe

Month	Average monthly evaporation [1]		Month	Average monthly evaporation [1]	
	In inches	In acre-feet [2]		In inches	In acre-feet [2]
January	1.33	13,700	August	5.31	54,900
February	.97	10,000	September	3.94	40,700
March	1.68	17,400	October	2.22	22,900
April	2.87	29,600	November	1.62	16,700
May	3.62	37,400	December	1.26	13,000
June	4.07	42,000			
July	5.15	53,200	Total for year	34.04	352,000

[1] Estimated from available evaporation pan measurements over period 1919–45.

[2] Based on a surface area of 124,000 acres, which is considered to be an average area during summer season and corresponds to elevation 6226.2, Lake Tahoe datum.

NOTE.—Average evaporation during irrigation season (April through September) amounts to approximately 250,000 acre-feet.

ENCLOSURE 2

Area and storage capacity of Lake Tahoe

Water surface elevation, Lake Tahoe datum	Area in acres	Storage capacity in acre-feet [1]	Water surface elevation, Lake Tahoe datum	Area in acres	Storage capacity in acre-feet [1]
6,221.0 feet	123,400		6,227.0 feet	124,580	495,100
6,222.0 feet	123,440		6,228.0 feet	124,913	619,900
6,223.0 feet	123,487	0	6,229.0 feet	125,077	744,900
6,224.0 feet	123,553	123,500	6,230.0 feet	125,197	870,000
6,225.0 feet	123,670	247,100	6,231.0 feet	125,294	995,300
6,226.0 feet	123,924	370,900			

[1] Above present so-called rim at elevation 6,223.0.

NOTES.—Data compiled by H. C. Dukes from U. S. G. S. Water Supply Paper No. 68. Storage capacity available between certain limits is as follows: From 6,223.0 to 6,229.1 (presently decreed limits), 757,400 acre-feet; from 6,223.0 to 6,228.0 (limits proposed in 1946 report draft), 619,900 acre-feet; from 6,221.9 to 6,228.0 (1.1 feet below present limits), 755,700 acre-feet.

ENCLOSURE 3

DESCRIPTION OF TRUCKEE MEADOWS CHANNEL IMPROVEMENTS AS PROPOSED IN 1946 TRUCKEE RIVER INTERIM SURVEY REPORT DRAFT

The proposed Truckee Meadows Channel improvements would start about 2 miles east of Reno and extend for a distance of approximately 7½ miles downstream to the existing Largomarsino diversion dam. The improvements would consist of enlarging the river through the entire reach, constructing levees along approximately 6½ miles of channel, and removing existing rock dams. The channel enlargement and levees together would provide a capacity of 12,000 cubic feet per second with a minimum freeboard of 3 feet, and would also make possible better drainage of the area. A levee would also be extended approximately 1,100 feet upstream on the left bank of Steamboat Creek.

The channel enlargement would be accomplished by a combination of deepening and widening the existing channel. The improved channel bottom width would vary from 100 to 120 feet and the depth of excavation would vary up to 7 feet. The so-called reefs in Truckee Meadows are located in the lower 1 mile or so of the reach proposed to be improved. They consist of rock ridges which extend above the normal channel bottom and constitute an obstruction to flow. In order to remove these reefs, which average about 3 feet in height, it is estimated that from 20,000 to 40,000 cubic yards of rock excavation would be necessary.

Several existing rock diversion dams within the Truckee Meadows reach would also require removal in order to provide a clear channel for flood flows. It was originally proposed to replace two of these dams, the Asylum and Largomarsino Dams, with movable crest structures. More recently, however, consideration has been given to replacing the dams with pumping plants.

ENCLOSURE 4

EFFECT OF PLAN PROPOSED IN 1946 TRUCKEE RIVER INTERIM SURVEY REPORT DRAFT ON NOVEMBER–DECEMBER 1950 FLOODS

Shortly after the occurrence of the destructive floods of November and December 1950, an investigation was made to determine what effect the proposed 1946 Truckee River plan of improvement would have had on the floods if the improvements had been constructed and in operation at the time. Basic data available for this investigation consisted of records of flood flows as furnished by the United States Geological Survey and the Truckee River watermaster.

Plan of improvement.—For convenience of reference, the principal features of the Truckee River plan of improvement as proposed in the 1946 report draft are as follows:

(*a*) Improvement of the Lake Tahoe outlet and reduction of the maximum lake stage from elevation 6,229.1 to 6,228.0.

(*b*) Prosser Dam and Reservoir with 135,000 acre-feet storage capacity near mouth of Prosser Creek; maximum flood-control reservation for rain floods, 15,000 acre-feet.

(*c*) Diversion dam on Truckee River near Truckee and 500 cubic feet per second capacity conduit therefrom to Prosser Reservoir.

(*d*) Modification of operation of existing Boca Reservoir to provide a maximum flood-control reservation of 20,000 acre-feet for rain floods and 40,000 acre-feet for snow-melt floods.

(*e*) Channel improvement, levees and removal of existing dams along Truckee River from Reno to Vista to provide a capacity of 12,000 cubic feet per second.

Effect of proposed project on flood flows.—If the proposed plan of improvement had been in operation at the time of the floods, all three principal storage units (i. e., Lake Tahoe and Prosser and Boca Reservoirs) would have been coordinately operated to effect the maximum reduction in downstream flows, which would have required that reservoir releases be reduced to zero during the peak of the flood. As a matter of record, Lake Tahoe did not release any significant amount of water during the floods and no change would have been made in the operation of this unit. However, the provision of 20,000 acre-feet of space in Boca Reservoir prior to the floods would have permitted the reduction of outflows from this storage unit to zero during the occurrence of the flood peaks. Actually, Boca Reservoir had only about 7,000 acre-feet of storage space available at the beginning of the period and spilled some 5,000 cubic feet per second during the November peak. Prosser Reservoir would also have had no release during passage of the flood peak downstream, and would have stored all runoff from Prosser Creek in addition to 500 cubic feet per second of diverted flow from Truckee River. A summary of the reduction in flows which would have been effected by the proposed plan of improvement at various points in the basin for the major flood peak in November 1950 is given in the following tabulation:

	Actual recorded peak flow (cubic feet per second)	Estimated peak flow with project (cubic feet per second)
Lake Tahoe release	30	30
Truckee River near Truckee	6,500	6,500
Prosser Creek near mouth	4,300	[1] 0
Little Truckee River below Boca Reservoir	[2] 5,000	[1] 0
Truckee River at Farad	17,500	9,000
Truckee River at Reno	19,900	12,000

[1] Flow at time of occurrence of historical peak.
[2] Mean daily—peak not available but probably very little more.

Effect of proposed plan of improvement on flood damages.—The estimated peak flow of 12,000 cubic feet per second at Reno with the proposed project corresponds to the approximate zero damage flow at this point and it is believed that all damage in the city of Reno would have been eliminated. Further, this quantity also corresponds to the project capacity of the Truckee River through Truckee Meadows and all damage in this reach would have also been eliminated. The total damage which resulted from the November-December 1950 floods along the Truckee River amounted to about $3,100,000. It is estimated that if the proposed plan of improvement had been in operation at the time of the floods, the resultant damages would have been less than $300,000.

ENCLOSURE 5

FLOOD CONTROL OPERATION OF EXISTING AND PROPOSED RESERVOIRS AS CONTEMPLATED BY 1946 TRUCKEE RIVER INTERIM SURVEY REPORT DRAFT

The flood-control operation of the existing and proposed Truckee River Basin storage units can best be described separately for the two distinct types of floods which occur in the basin, i. e., rain floods and snowmelt floods.

The principle of controlling rain floods is to reserve a certain amount of vacant space in the reservoirs for the temporary storage of floodwaters during the rain-flood season. This season is considered to extend from about the middle of November to the middle of April. The plan of improvement proposed in the 1946 report draft contemplated a constant rain-flood reservation of 175,000 acre-feet, 15,000 acre-feet, and 20,000 acre-feet in Lake Tahoe, Prosser Reservoir, and Boca Reservoir, respectively. Such space would be held inviolate during the rain-flood season except when it is required for flood control. During the occurrence of a rain flood, the reserve space would be temporarily utilized for the purpose of restricting outflows and preventing downstream damage insofar as possible. In some cases, this would require the reduction of the reservoir release to zero during part of the flood. Following the flood, the waters would be released at the maximum possible rate without causing downstream damage so as to restore the scheduled reservation as soon as possible.

In the case of snowmelt floods, the situation is somewhat different in that the potential flood is already on the ground in the form of snow, and it is possible through the use of snow surveys and other data to predict the volume of the flood with a reasonable degree of accuracy. The objectives of the snowmelt flood-control operation are to (1) have available sufficient storage space to prevent damaging downstream flows to the maximum possible extent, and (2) fill the storage unit at the end of the flood season for maximum conservation benefits. During the snowmelt runoff period, generally from April through July, a variable quantity of vacant space is maintained in the reservoirs based upon the expected inflow and the required and permissible releases. In order to achieve the best possible control of snowmelt floods, the report draft proposed to utilize up to 100,000 acre-feet of storage space in Prosser Reservoir and up to the full capacity, or 40,000 acre-feet, of Boca Reservoir if snow surveys so indicated. In addition, 175,000 acre-feet of space would be available in Lake Tahoe, making a total of 315,000 acre-feet. This total represents the maximum flood-control reservation and would only be vacated during years of extremely severe snowmelt flood hazard; the storage units would never be drawn down to the extent that the estimated runoff would be insufficient to fill them.

In comparing the above-described operation with the present operation of existing Lake Tahoe and Boca Reservoir, the primary difference is found in connection with the control of rain floods. The operation of Lake Tahoe and Boca Reservoir do not presently contemplate any specific reservation for rain floods, and any control accomplished is generally incidental. The difference can be illustrated by the November 1950 flood, the major peak of which occurred when there was only approximately 8,000 acre-feet of empty space in Boca Reservoir. As a result, the reservoir promptly filled and spilled some 5,000 cubic feet per second. Under the proposed flood-control operation of this reservoir, 20,000 acre-feet of space would have been available and the additional 12,000 acre-feet would have been sufficient to permit holding releases to zero until the flood peak had passed downstream.

In the case of operation during snowmelt floods, the proposed plan would actually be very little different from the present operation. Extensive use of

snow surveys is presently made by the operators with the object of holding the level of Lake Tahoe to the legal limit of elevation 6,229.1 feet. However, no specific amount of reservation is provided for and generally there would be less available than under the proposed operation. The proposed plan would have a further advantage over the present operation by reason of the redistribution of storage to control a greater portion of the watershed.

In order to achieve the above-described objectives, the proposed plan called for a relatively high degree of coordination in the flood-control operation of the three principle storage units. A feature of the plan which emphasizes the need for such coordinated operation is the Truckee River diversion dam and conduit, by means of which it is possible to transfer storage from Lake Tahoe to Prosser Reservoir. The proposed system would provide a considerable flexibility in holding downstream Truckee River flows to specified amounts and in the utilization of available storage.

ENCLOSURE 6

REPAYMENT FOR CONSERVATION ACCOMPLISHMENTS OF PLAN OF IMPROVEMENT PROPOSED IN 1946 TRUCKEE RIVER INTERIM SURVEY REPORT DRAFT

In addition to accomplishing a relatively high degree of flood control on Lake Tahoe and the Truckee River, as well as providing other benefits, the plan of improvement proposed in the 1946 Truckee River Interim Survey report draft would make available some additional irrigation water and would make possible the generation of additional hydroelectric power in the region.

The irrigation accomplishments would result from the better regulation of water supply under the plan and would consist of improved seasonal distribution of water and a decrease in deficiencies which now occur during dry years. Operation studies indicated that under present conditions there would have been 4 years during the period 1901 to 1944 in which irrigation supplies would have been deficient, and that under project conditions these deficiencies would be eliminated entirely. The total amount of deficiencies eliminated during the period would be 127,500 acre-feet, which would be equivalent to an average of approximately 3,000 acre-feet per year; however, the expression of this accomplishment in terms of an average annual quantity means little in this case.

Although the plan of improvement proposed in the 1946 report draft would not include any power-generating facilities, other than provisions within the Prosser Dam outlet works for the later installation of a power penstock, the development of the plan was based on a rather substantial increase in hydroelectric-generating capacity in the area. A comparison of the estimated power output of existing generating facilities and of the facilities considered in the report draft is given in the following tabulation:

Power plant	Average annual output in million kilowatt-hours under—[1]	
	Existing conditions	Project conditions
Farad and Fleish plants [2]	40.2	
Verdi, Washoe, and Reno plants	40.5	41.5
Mystic plant [2]		157.5
Prosser plant		28.6
Lahontan plant	10.4	10.4
Total	91.1	238.0

[1] At point of generation.
[2] The Mystic plant would replace the existing Farad and Fleish plants.

From the above tabulation it is evident that the increased output under project conditions as envisioned in the 1946 report draft, as compared to existing conditions, would amount to almost 150,000,000 kilowatt-hours per year (146,900,000 kilowatt-hours). However, inasmuch as the Mystic power development could be made independently of the proposed plan of improvement, only a small portion of its output (that portion due to improved streamflow regulation) was credited

to the plan in the 1946 report draft, which procedure gave a total power accomplishment for the plan of 33,100,000 kilowatt-hours per year.

No detailed cost-allocation studies were made for the purpose of the report draft. The only non-Federal cost given in the draft was an amount of $846,000, which was the estimated cost to local interests for complying with the usual requirements of local cooperation in connection with the channel improvements through Reno and Truckee Meadows and at the outlet of Lake Tahoe. With respect to repayment for the irrigation and power accomplishments described above, the report recommended that the beneficiaries enter into an agreement with the United States to pay for their fair value. It was proposed that the irrigation beneficiaries reimburse the Federal Government, either in a lump sum or on an annual basis, within their ability to pay, for the improved supply. The report draft stated that such repayment contracts should be worked out jointly between local interests, the Bureau of Reclamation, and the then War Department. These irrigation repayments could be accomplished in accordance with the existing Reclamation Act or with special legislation which could be made a part of the act authorizing the improvements.

With respect to the power accomplishments of the plan, it was proposed that a reasonable and equitable payment for such benefits be made to the Federal Government as determined by the Federal Power Commission under provision of section 10f of the Federal Power Act. However, this arrangement for repayment could be altered by congressional action at the time of authorization if so desired.

Although the report draft did not recommend any construction of power facilities by the Federal Government, consideration has recently been given to such a recommendation. If this were done, the hydroelectric power and energy generated would be delivered to the Secretary of the Interior for disposition under the terms of section 5 of the 1944 Flood Control Act, or could otherwise be disposed of as specifically directed by Congress.

ENCLOSURE 7

STATE OF CALIFORNIA,
DEPARTMENT OF NATURAL RESOURCES,
Sacramento, November, 1946.

Subject: Survey Report, Truckee River and Tributaries.

DISTRICT ENGINEER, UNITED STATES ENGINEER'S OFFICE,
Sacramento, Calif.

DEAR SIR: Copy No. 14 of your proposed report on the above subject was referred by the State engineer to this office for review and comment under date of October 8. The report was referred to the director of fish and game. The executive secretary submits the following comments:

Pages 8 and 9: Division of fish and game not only owns and operates a fish hatchery at Tahoe City but also a hatchery near Camp Richardson on Taylor Creek.

Page 27: The excavation of a channel for a distance of 3,200 feet downstream from the outlet of the weir at Lake Tahoe should be done with a view of maintaining the utility of that section of stream as a spawning area for fish which are blocked by the weir. As far as possible, gravel beds should be left in the stream bottom.

Page 27, paragraph 44: It states, "No provision would be made for fishways or ladders." A fishladder of ample size should definitely be provided. A letter to Mr. Brian Curtis of this division dated Stpeember 26, 1946, from Charles H. McNutt, colonel, Corps of Engineers acting district engineer, Sacramento, stated, "Facilities to accommodate the upstream movement of fish will be included in our proposed plans." This letter, of course, was dated subsequent to the date of the report under discussion.

Page 32: Proposed release of a minimum flow of 50 cubic feet per second in all reaches of the Truckee River is satisfactory, but the added proviso "when possible to do so without impairing existing rights for power and irrigation" is not satisfactory. At the time the original Truckee River agreement was established by the courts, no opportunity was given to the division of fish and game to provide for the maintenance of fishlife. Furthermore, in view of the fact that the subject report provides that the operation of the facilities to be constructed be turned over to the Truckee-Carson Irrigation District, proviso should be made in the contract with the district for the maintenance of the minimum flow of 50 cubic feet per second at all times without reservation.

Page 35: It is indicated that the operating schedule for Boca Reservoir may require that the reservoir be completely drawn down at the end of irrigation season. This is certainly not desirable if fish life is to be maintained in the reservoir for recreational purposes. The same of course applies to the new proposed Prosser Reservoir if fluctuations therein are extreme.

It is requested these comments receive your careful consideration in preparation of your final report.

Very truly yours,

WARREN T. HANNUM,
Director, Natural Resources.

ENCLOSURE 8

HYDROGRAPHS, LAKE TAHOE AND TRUCKEE RIVER

The attached plate indicates Lake Tahoe stages and flows in the Truckee River at various points, under present conditions and proposed project conditions, for the period 1901 to 1940. These data were plotted from operation studies made in connection with the preparation of the 1946 Truckee River interim survey report draft. Present conditions represent conditions of storage and power development and stream flow regulation which existed in 1945 (and are the same today). Project conditions are those conditions which would obtain if the plan of improvement proposed in the report draft were constructed and in operation. These hypothetical operations under present and project conditions were made in accordance with the Truckee River agreement and the final decree, insofar as the maintenance of prescribed downstream flows is concerned. The data represent average monthly values and considerable departure therefrom due to daily fluctuations could be expected at times. (Plate retained in files of the Public Works Committee.)

Colonel HAUG. One thing that hasn't been brought out, I think—and I believe it is very important—is that the reason we would like to have the comments of the local agencies interested is because our plan involves a modification of the Truckee River agreement, and I certainly wouldn't want to recommend a plan which would require such a modification, unless we had the endorsement or comments of the local interests that would be affected by such a change.

Senator MALONE. Does the modification pertain to existing reservoirs?

Colonel HAUG. It contemplates use of the existing reservoirs.

Senator MALONE. Is it a modification of the agreement in recommending the lowering of the level of Lake Tahoe?

Colonel HAUG. Yes. The plan involves taking the top 1.1 feet off the lake, which would make the maximum 6,228 feet, instead of the existing 6,229.1 feet.

Senator MALONE. That would, necessarily, have to be agreed upon by the parties to the Truckee River agreement?

Colonel HAUG. Yes. I will ask Mr. Kochis to describe the physical features of the plan, on the map. Mr. Frank Kochis is the chief of our engineering division.

Mr. KOCHIS. The basic plan is the lowering of the level of Lake Tahoe and for the alleviation of the flood hazard on the Truckee River proper, particularly in the Reno and Truckee Meadows area. The plan consists of a 135,000 acre-foot reservoir off Prosser Creek, and it is proposed to limit the maximum level of Lake Tahoe to 6,228 feet, in lieu of the present 6,229.1 feet authorized under the Truckee River agreement.

Senator MALONE. Then it is contemplated to lower the lake level by 1.1 feet. What, roughly, is that capacity?

Mr. KOCHIS. 135,000 acre-foot capacity, the same as Prosser Reservoir. The water now in the upper 1.1 feet of Lake Tahoe is

proposed to be transferred to Prosser Reservoir by means of a diversion dam above the town of Truckee, and about a 3-mile conduit from the Truckee River.

Senator MALONE. What did you say is the capacity of Prosser Reservoir?

Mr. KOCHIS. 135,000 acre-feet.

Senator MALONE. And what is the length of the canal?

Mr. KOCHIS. Three miles. The plan also involves modification of the Truckee River agreement by making improvements at the outlet of Lake Tahoe, so we can get additional outlet capacity at high lake stages.

Senator MALONE. What is the elevation of Lake Tahoe at this time?

Mr. KOCHIS. I think 6,223 feet. There are two potential power sites susceptible to development below Prosser Reservoir. Our plan as contained in our report of 1946 did not approve these power features, although we studied all means of developing them. The principal reason those power projects were not incorporated in our plan is because they were still under study by local interests and the Bureau of Reclamation. There are a number of ways in which they could be developed. Channel improvements on the Truckee River below the town of Truckee involve the proposed modification of two dams in the city of Reno, known as the Wingfield Park Dams. These were modified after our report, in 1950, and moveable structures have been constructed in their place, so that ample water flow is provided. Improvements below the city of Reno involve modification of two additional dams, the Asylum Dam at the upper end of the Truckee Meadows, and the Lagomarsino Dam at the lower end. In addition, channel improvements for 1½ miles was contemplated, to take care of the capacity of the river above the reefs and to eliminate back inundation of lands.

The total estimated cost of the physical facilities incorporated in our 1946 plan were estimated, at that time, at $13,360,000. The plan involves the installation of nondamaging structures on the Truckee River and lowering the lake level to 6,228 feet. In addition, it makes possible development of a 900-foot power head, with a total new capacity of some 33,000 kilowatts, on the average. The irrigation features are purely incidental, inasmuch as there was no new plan for irrigation only; it is limited to existing water requirements and eliminating shortages during the dry years. The physical features in the plans as incorporated in our report are limited to maintaining, insofar as physically possible, a flow of 50 cubic feet per second down the Truckee River, except that taken out by the existing power plants.

We have received comments from the California Fish and Game Commission, requesting consideration of including a fish ladder in our proposed diversion dam above the town of Truckee, and, to bring our report up to date, we have considered fish ladders. The total annual benefits as evaluated in 1946 amount to the sum of $746,000. This, compared to an estimated annual cost of $640,000, as of that date, indicates that the project is economically justified and feasible.

Senator MALONE. I would like to enter into the record now the preliminary report of the Army engineers' office on flood control on the Truckee and Carson Rivers in Nevada.

(The report is on file with the Public Works Committee.)

Senator MALONE. We will now recess until 1:30.

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AFTER RECESS

Senator MALONE. The meeting will come to order. Colonel Haug, will you continue from where you left off?

Colonel HAUG. I believe we completed our presentation.

Senator MALONE. Has anyone any questions to ask Colonel Haug or Mr. Kochis?

Mr. WILL M. BLISS (representing Lake Tahoe Water Users' Association, and others). I would like to ask what improvement is contemplated at the outlet of Lake Tahoe. Do you contemplate improvements below the dam?

Mr. KOCHIS. I might state that our improvement for additional outlet from the lake, considered absolutely necessary, would be clearing out the present dam and putting in a concrete sill at the present rim elevation, but with better hydraulics. We probably could further improve the hydraulics by works below the dam; the details of that will have to depend on detailed examination.

Senator MALONE. Wnat does the rim, or bottom of the channel, consist of now?

Mr. KOCHIS. The natural formation would be very resistant to erosion. I don't know exactly what the geological formation is. The capacity at maximum lake elevation, 6,228 feet, I believe now is around 1,500 cubic feet per second. Under our proposed flood-control plan we would like to increase that to 2,000 or 2,500 cubic feet per second.

Mr. BLISS. What is the capacity when the lake is getting down to the lowest point?

Mr. KOCHIS. It has a very nominal capacity, close to zero. And it is my understanding that even from the conservation standpoint it is too small to lower the lake fast enough. It is likely that any improvement we would make to increase the hydraulic capacity at flood stages would probably also increase the capacity of the outlet at the 6,224-foot elevation, or around that lower level.

Mr. BLISS. Improvement of the channel below the outlet would increase the hydraulic capacity when the lake level is 6,224 feet?

Mr. KOCHIS. Yes.

Mr. BLISS. What is the elevation of the outlet?

Mr. KOCHIS. 6,223 feet.

Mr. BLISS. Then between 6,223 and 6,229.1 feet is the storage capacity of the lake?

Mr. KOCHIS. Yes.

Mr. BLISS. How much of that capacity could you withdraw?

Mr. KOCHIS. I think we could withdraw it down to 6,223 feet, the natural elevation. Evaporation takes it below that elevation.

Mr. BLISS. Now, what would you say is the lowest elevation that you could drop the level down for irrigation?

Mr. KOCHIS. 6,223 feet.

Mr. BLISS. And how would you do that?

Mr. KOCHIS. Well, it will run out to that level. The rate at which it will run would be gradually reduced to zero.

Mr. BLISS. How long would it take to draw that out?

Mr. KOCHIS. I can't answer that question.

Mr. BLISS. What is the evaporation minimum?

Mr. KOCHIS. I imagine 40 inches a year.

Mr. BLISS. What part of that occurs during the normal irrigation season?

Mr. KOCHIS. As a guess, I would say 30 inches of that would occur during the irrigation season.

Mr. BLISS. Have you figures on the rate of evaporation between the beginning of the irrigation season and the end of it?

Mr. KOCHIS. We can submit what information we have on it.

Mr. BLISS. Will you do that?

Mr. KOCHIS. Yes.

Mr. BLISS. Now, what is the storage capacity of the lake between the 6,223 elevation and the 6,229.1 elevation which is now the legal limitation of the high-water mark, in accordance with the Truckee River agreement?

Mr. KOCHIS. As I recall, it is 752,000 acre-feet.

Mr. BLISS. What is your conclusion as to how much of that is taken up by evaporation?

Mr. KOCHIS. I would guess something like 240,000 or 250,000 acre-feet, approximately.

Mr. BLISS. Considering the average evaporation over the years, that is a very definite figure; is it not?

Mr. KOCHIS. Yes. I do not recall what the basis of our evaporation estimates are, but we have that.

Mr. BLISS. Will you submit that for the record?

Mr. KOCHIS. Yes.

Mr. BLISS. What we have at the present moment is about 500,000 acre-feet of water usable for irrigation?

Mr. KOCHIS. Something like that; yes.

Mr. BLISS. Supposing the lake level is lowered by 1.1 feet, how much would that reduce the storage capacity?

Mr. KOCHIS. By 135,000 acre-feet.

Mr. BLISS. That would be the depletion of the storage capacity?

Mr. KOCHIS. Yes.

Mr. BLISS. That would leave, then, about 365,000 acre-feet for irrigation purposes?

Mr. KOCHIS. Yes; approximately.

Mr. BLISS. What would be the difference in the storage available in Lake Tahoe if you were to lower both the maximum and minimum 1.1 feet? How would the amount available compare with the 500,000 acre-feet?

Mr. KOCHIS. It depends on the amount you would lower the rim elevation. It would tend to reduce the available storage capacity, I believe, by a very small amount.

Mr. BLISS. What is your estimate of it?

Mr. KOCHIS. I have no basis of estimating it.

Mr. BLISS. Will you submit for the record your computations and comparison with the present water available with the present elevations of 6,223 and 6,229.1?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. You believe you would have approximately the same available storage?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. Will you submit your computations on that?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. Now, tell us more about the proposed Prosser Reservoir. You say the capacity is 135,000 acre-feet?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. Is that designed expressly to compensate for the water taken out of the lake?

Mr. KOCHIS. Yes, approximately. Also, 135,000 acre-feet is the maximum capacity of Prosser Reservoir.

Mr. BLISS. It would approximately compensate for that taken out of the lake?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. The storage in the Prosser Creek Reservoir would enter the river below, instead of coming out of the lake?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. So the only real change is the transfer of the 135,000 acre-feet from Tahoe to Prosser?

Mr. KOCHIS. Yes, sir.

Mr. BLISS. Now tell us again about that canal to Prosser Reservoir.

Mr. KOCHIS. The canal has a capacity of 500 cubic feet per second, and a length of about 3 miles.

Mr. BLISS. Would there be any chance that the 500-foot-capacity canal would not handle the surplus water if the flood-control facilities of the lake itself would not be sufficient?

Mr. KOCHIS. No. In my opinion the flood control would be more efficient than under the existing conditions.

Mr. BLISS. What makes it more efficient?

Mr. KOCHIS. In the first place, there are six flood-control operations that do not now exist in the operation of the lake.

Mr. BLISS. Now, just what do you mean by that? In other words, that you can't control it now?

Mr. KOCHIS. That is correct.

Mr. BLISS. Is that because under the Truckee River agreement you can't use the entire capacity of Lake Tahoe above 6,229.1 feet?

Mr. KOCHIS. I do not understand your question.

Mr. BLISS. I do not understand you. In other words, the reason you are unable to use the entire storage capacity of the lake is because of the elevation limit of 6,229.1 feet?

Mr. KOCHIS. Maybe the best way to bring this out would be for me to explain the method of flood-control operations.

Senator MALONE. Yes.

Mr. KOCHIS. Our method of flood-control operations essentially involves setting up flood-control reserves, and under the rules and regulations for flood control established by the Chief of Engineers there is a maximum of 135,000 acre-feet of storage in Lake Tahoe at the 6,228 level.

Senator MALONE. Your setup reserves would only allow 135,000 acre-feet in Lake Tahoe?

Mr. KOCHIS. It would not permit storage of water to encroach on the 135,000 acre-feet in Lake Tahoe as long as there was a hazard of flood above that level.

Senator MALONE. In other words, as long as there is a hazard it may not go above the 6,228 mark?

Mr. KOCHIS. No.

Senator MALONE. Does anyone have that information? I do not understand the limitation of 135,000 acre-feet when you have a total capacity there above the low-water mark of near 500,000 acre-feet.

Mr. KOCHIS. I do not have further information on that at this time.

Mr. WILL M. BLISS (representing Lake Tahoe Water Users' Association). In 1915 and 1917, both of those years, it went above 6,228 feet. It would not have gone above 6,229.1.

Senator MALONE. I think Mr. Bliss is more familiar with the operation of Lake Tahoe than any man I know of. It seems to be the opinion of the Corps of Army Engineers that they are limited to 135,000 acre-feet in Lake Tahoe.

Mr. GEORGE DEVORE (representing Sierra Pacific Power Co. and others). Under the flood-control operations of the past 18 years over a million acre-feet of water have been dumped from Lake Tahoe.

Senator MALONE. Have you anything further to say on that, Mr. Kochis?

Mr. KOCHIS. No, sir.

Senator MALONE. It is not plain to me, on the record you have prepared, as to why you believe you have a better flood-control plan with a lesser leeway. I would be very happy for you to review that again.

Mr. KOCHIS. The flood-control operations are based upon an actual reservation of 135,000 acre-feet of storage in Lake Tahoe, plus a reservation of up to 100,000 or more acre-feet in Prosser Reservoir during the same period, plus the operation of Boca Reservoir, the maximum flood-control capacity of which is 40,000 acre-feet, the exact amount depending on the improvements, plus the present methods of operating Lake Tahoe. By setting up specific rules and regulations for storage in the three units during flood stages, you can make better use of the available storage than under the present operations, from a flood-control standpoint. Some of the local organizations are not in agreement with it.

Senator MALONE. Now, it might be well to state what I believe to be the position of the water users on this side of the watershed. What they are interested in is getting flood control and more water for irrigation. In other words, I think they would be very reluctant to agree to anything that would limit the ultimate amount of water available to this side of the slope for irrigation. They are, of course, in favor of flood control, but if it limits the ultimate amount of water to be stored for irrigation on this side, there would be very few people interested in it.

Mr. KOCHIS. Our control plan is the utilization of approximately 135,000 acre-feet of potential storage at the Prosser site, transferred storage from the top of the lake, in lieu of storage in the lake.

Senator MALONE. I understand that. But you are not adding to the amount of storage water available to this side?

Mr. KOCHIS. Additional storage could be provided on the Little Truckee River, provided that storage did not conflict with the district engineer's report of 1946, and could be integrated with it.

Senator MALONE. Is there any other site that might be integrated with it?

Mr. KOCHIS. Another site that might be integrated is the Watashameau site. That site is not on the Truckee River; however, it has been considered in conjunction with the Truckee River development, for the reason that it is related to the water supply, or additional water supply, for the Truckee-Carson irrigation district, which gets part of its supply now from the Truckee River.

Senator MALONE. Where is that site?

Mr. KOCHIS. It is on the Bureau of Reclamation's map. It is on the Carson River, just below the California State line. The Bureau of Reclamation has been investigating it in recent years, and can probably give you the exact location.

I might mention one other thing. Colonel Haug's formal statement contained words to the effect that our plan contained in the 1946 report recognizes that future developments in the interest of irrigation would probably come along in the basin, and that our plan would fit into such future developments if such future developments integrated with the 1946 report. However, I want to point out that if Washoe Lake is developed as a storage reservoir, by means of a tunnel from Lake Tahoe, that would not supplement Prosser Reservoir, but could be considered as a substitute for it.

Senator MALONE. Have the Army engineers investigated that feature?

Mr. KOCHIS. Yes. That development has been discussed for a good many years; we studied it before the war, and abandoned it, largely due to the strong opposition of the Lake Tahoe interests. I do not recall the economics of that development, worked out at that time.

Senator MALONE. Was there any other means investigated of utilizing Washoe Lake, other than by a tunnel to Lake Tahoe?

Mr. KOCHIS. Yes. We considered a canal from the Truckee River to take water from Lake Tahoe to Washoe Lake.

Senator MALONE. Has there ever been any investigation of any other reservoir sites on the Truckee River watershed?

Mr. KOCHIS. Yes, a number of others. The ones I recall immediately are: There was a potential reservoir site in Lemmon Valley, which was considered before the war, in fact there was a plan for it, then the Army built an air base there; we gave consideration to building higher banks for the Truckee River proper, but that was abandoned, due to the utility problems and lack of reservoir sites on the Truckee River.

Senator MALONE. Has Spanish Springs Valley been considered?

Mr. KOCHIS. We have considered it, but it would have a very small capacity, and drainage and controls would be limited, therefore we have not seriously contemplated it.

Senator MALONE. Is it necessary to consider the Truckee and Carson Rivers together before anything is done on the Truckee watershed, in order to have a final complete unit, in the years ahead, for the two rivers?

Mr. KOCHIS. Not as far as flood control is concerned, except if flood control is solved by the construction of additional reservoirs. I, personally, feel that would be foolish.

Senator MALONE. I am asking if it is necessary to consider the two rivers together before anything is done on either river, or could the problem on the Truckee be solved first, and that on the Carson River later, after a decree settling the water rights was finally entered?

Mr. KOCHIS. Flood control on the Truckee can be solved first, and the Carson problem considered later.

Senator MALONE. Then later the Carson River unit could be operated in conjunction with the Truckee River unit?

Mr. KOCHIS. That is correct.

Senator MALONE. Supposing the Truckee River project would be authorized next year, and the money was available, how long would it take to complete the project as you have outlined it?

Mr. KOCHIS. I think it would take probably 4 years to construct the project, after all required assurance of local cooperation is given.

Senator MALONE. The local cooperation to which you refer would be consent to the modification of the Truckee River agreement?

Mr. KOCHIS. That would be the principal one; there might be others; Also, it would depend on Federal contributions.

Senator MALONE. My question was based on the assumption that the Federal appropriations would come along.

Mr. KOCHIS. I would say 4 years.

Senator MALONE. Four years from the start of construction it would be available for operation?

Mr. KOCHIS. Yes, sir.

Senator MALONE. Now, about the lower regions of the Truckee River, you have planned certain channel improvements and the removal of certain reefs in the river. Explain that, briefly.

Mr. KOCHIS. In the lower Truckee meadows the river channel has a capacity of 3,500 to 4,000 cubic feet per second. When the flow exceeds that amount, as it frequently does, almost every year, the water backs up and inundates pasturelands, and those lands can't be utilized, due to that overflow hazard. The plan incorporated in the 1946 report recommends the removal of some existing reefs, and enlarging the channel for some seven and a half miles, with some supplemental levees. Such improvements would tend to eliminate the hazards at high water stages, and would facilitate the carriage of the water and would make possible the full utilization of certain lands. The plan is to provide a channel capacity of 12,000 cubic feet per second, in place of the present 3,500.

Senator MALONE. Will you submit, for the record, your figures as to the depth, width, and length of that construction, also the cost, and so forth?

Mr. KOCHIS. Yes, sir.

Senator MALONE. Are there any questions anyone would like to ask Mr. Kochis or Colonel Haug now?

Mr. F. R. BREEN (representing Nevada State Fish and Game Commission, and others). Mr. Kochis, as I understand, the Prosser Creek Reservoir is to serve two purposes; storage and to bring down the level of Lake Tahoe.

Mr. KOCHIS. Yes, sir.

Mr. BREEN. Do I correctly understand you to mean that as far as Lake Tahoe is concerned, even in flood years, the level would be kept lower than it has in the past?

Mr. KOCHIS. That is correct, 1.1 feet lower.

Mr. BREEN. That is, it would be kept at 6,228 feet?

Mr. KOCHIS. Yes, sir.

Mr. BREEN. And the water that is now stored in Lake Tahoe above that level would be transferred to the Prosser Reservoir?

Mr. KOCHIS. Yes, sir.

Mr. BREEN. Now, how would the Prosser Reservoir affect the flood-control problem in the Truckee meadows?

Mr. KOCHIS. My answer, which I gave before, is that by the setting up of rigid and firm flood-control operating rules and regulations in

Lake Tahoe, Prosser Creek Reservoir, and Boca Reservoir, there would be better control of floods than can be obtained under the existing conditions.

Mr. BREEN. Then, so far as the present plan that you have related to us is concerned, there would be no additional upstream storage facilities provided?

Mr. KOCHIS. That is right.

Mr. BREEN. How could it have affected the flood of 1950?

Mr. KOCHIS. The plan we proposed in 194€, in our opinion, would have reduced the flow of the November and December 1950 flood at Reno from 19,900 to 12,000 cubic feet per second. That is based on preliminary estimates; local interests do not entirely agree.

Mr. BREEN. How do you arrive at the conclusion that it would decrease the flow from 19,000 to 12,000 feet in the Truckee at Reno?

Mr. KOCHIS. By determining the amount of water we could store, to reduce the flow.

Mr. BREEN. Was your estimate based upon the assumption that Prosser Reservoir would be empty?

Mr. KOCHIS. I can't answer that, except that probably it was based upon the normal situation that exists.

Mr. BREEN. It you only took 500 second feet from the Truckee River in that 3-mile canal to Prosser Reservoir, and there was a maximum flow of 19,000 feet in the river, how would you control it?

Mr. KOCHIS. I can't answer that question at this time. We will submit a report showing how the 1950 peak could have been reduced to 12,000 cubic feet per second.

Mr. BREEN. Could you tell me in a general way how you would expect to decrease a flow of 19,000 feet to 12,000 feet, when you only have a canal carrying 500 feet?

Mr. KOCHIS. No, sir.

Senator MALONE. Perhaps they can submit figures as to how they arrive at that conclusion. It is a little hard for me to understand how you could get better regulation by Prosser than you could with Lake Tahoe.

Mr. KOCHIS. We will be glad to submit that.

Mr. BREEN. Do I understand you will submit an explanation as to how the flow could be reduced from 19,000 to 12,000 feet?

Mr. KOCHIS. Yes, sir.

Senator MALONE. By using Prosser Reservoir in connection with the Boca Reservoir, and why that would be more efficient than the present Lake Tahoe operation.

Mr. KOCHIS. Yes.

Mr. BREEN. As far as your flood-control features are concerned, all the water taken out of Lake Tahoe would come back into the Truckee River?

Mr. KOCHIS. Yes; all that it is physically possible to return.

Senator MALONE. By the way, will you show us on the map where the water from Prosser Reservoir would reenter the river, at what point, approximately?

Mr. KOCHIS. We would bring that water back just below the mouth of the Little Truckee River, to the Mystic powerhouse.

Senator MALONE. The water would be returned below the Boca Reservoir?

Mr. KOCHIS. Just below the mouth of the Little Truckee, above the Boca Reservoir.

Senator MALONE. Would that have a tendency to reduce the flow in the Truckee River?

Mr. KOCHIS. Yes; it would, with effect on two existing powerplants of the Sierra Pacific Power Co., as I recall, and the reduction of power at those sites would have to be replaced by new developments.

Mr. BREEN. Would that deficiency in the river be detrimental to fish life?

Mr. KOCHIS. I imagine that is a debatable point. We attempt to maintain a minimum flow of 52 cubic feet per second, but at times the flow has receded to as low as 28 or 30 cubic feet per second. We do not think it would be detrimental to fish life in the long run, but I realize that is a very debatable point.

Mr. BREEN. Supposing that the plan went into effect, who would administer the release of water from Prosser Reservoir?

Mr. KOCHIS. It would be in the hands of the water department, and be administered according to the interstate snow surveys. We have considered various alternative means by which the operation could be accomplished. It appears to be consistent to make local interests responsible, if they would operate the flood control according to rules and regulations to be prescribed by the Secretary of War. I want to point out that that is a policy that would have to be given very careful consideration, not only by the local interests but the Corps of Engineers and Congress itself. It is the normal procedure now to require local interests to take over the cost and maintenance of such Federal projects.

Senator MALONE. Let me ask you about the division of the cost of the project.

Mr. KOCHIS. In 1946 the cost was estimated at $13,336,000, if I remember right.

Senator MALONE. Now, that included the total cost of Prosser Creek Reservoir, the improvement of the outlet at Lake Tahoe, the improvement of the river channel, and the removal of the reefs?

Mr. KOCHIS. Yes.

Senator MALONE. That is about the extent of the project?

Mr. KOCHIS. Yes.

Senator MALONE. Now, how much of that cost is written off for flood control, if any?

Mr. KOCHIS. In 1946 it was proposed that local interests carry in the neighborhood of $860,000 of the cost, the remaining cost to be carried by the United States, the Government to be repaid by power interests.

Senator MALONE. The revenue from power would go to compensate the Government?

Mr. KOCHIS. Yes.

Senator MALONE. What part of the Government's share would be written off, and what part compensated for?

Mr. KOCHIS. We have no approximation of those figures.

Senator MALONE. The "local interests" would include the Lake Tahoe water users, Washoe County Conservation District, Truckee-Carson Irrigation District water users——

Mr. KOCHIS. All local interests. We did not specify or set up in our report what the local interests were.

Senator MALONE. Do you recall approximately how much was written off for flood control, without repayment?

Mr. KOCHIS. The whole cost was written off for flood control, the Federal Government to carry that.

Senator MALONE. I understand that. But, deducting the $860,000 to be paid by local interests, there is $12,476,000 to be accounted for. Now, how much of that is to be written off and how much compensated for?

Mr. KOCHIS. We made no determination of that. We estimated approximately $20,000 a year compensation.

Senator MALONE. Over how long a period would they pay it?

Mr. KOCHIS. We did not estimate the repayments for either power or irrigation, in our report.

Senator MALONE. What would be your estimate as to how many years that $20,000 would be paid?

Mr. KOCHIS. I have no figures on that.

Senator MALONE. You must have some estimate. You must have, in your calculations, some place, had some idea of what they would repay.

Mr. KOCHIS. We computed the increased net income that would result from the improved water supply made available. If any charge were made it would not, in my opinion, exceed $10,000 or $20,000 for the irrigation and power, respectively.

Senator MALONE. It would not exceed $20,000 a year?

Mr. KOCHIS. No. If it were a repayment under the Reclamation Act it would be 40 years; if it were under the Power Act referred to in our report, it would be indefinite.

Senator MALONE. In other words, it would be for the life of the project?

Mr. KOCHIS. Yes.

Senator MALONE. It represents payment for how much power?

Mr. KOCHIS. The benefits the power interests get in increased kilowatt hours.

Senator MALONE. And how many kilowatt-hours is that?

Mr. KOCHIS. It represents benefits from the project of 33,000 kilowatt installations at the Mystic and Prosser sites. As I recall, the statement was about 150 million kilowatt-hours annually.

Senator MALONE. Now, Mr. Kochis, you will have an opportunity to review your testimony, and when you do, I hope you will give us a little more definite figures on that. How much additional water did you estimate will be available?

Mr. KOCHIS. I don't recall that, exactly. I have in mind 3,000 acre-feet, but that doesn't actually give a full picture. It increases the water supply by increasing efficiency in dry years.

Senator MALONE. If 3,000 acre-feet of additional water is made available, would a payment of $20,000 annually cover that?

Mr. KOCHIS. Yes.

Senator MALONE. All I want to do is take something back to our committee, so our engineers, and myself as far as that is concerned, will understand what the Corps of Engineers recommend.

Mr. EDWARD M. PECKHAM (president of the board of directors of Washoe County Water Conservation District). Assuming that this plan or the one the Truckee-Carson Committee has in mind goes

ahead, and assuming that it takes 4 years to complete, and suppose that channel clearance down the river was accomplished, by legislation through Washington, ahead of this overall program, what could we expect in flood benefits that would apply to our overall plan? Would we be allowed credit for the channel clearance?

Mr. KOCHIS. I think the answer to your question is "No."

Senator MALONE. As I understood the question, I think Mr. Peckham means if the money were advanced for any part of this project, with particular reference to removal of the reefs, for instance, would they be compensated when the entire project went through.

Mr. KOCHIS. Not unless the work was authorized by Congress as a unit. If the project was split up and authorized separately, it might have an abundance of benefits, or it might not have sufficient benefits.

Col. D. S. BURNS (division engineer, Corps of Army Engineers). I would like to say in that connection that if the removal of the reefs and clearing the channel were authorized separately, that portion of the project would have an overabundance of benefits, while the rest of the project might not have sufficient benefits. As you know, Senator, with the Corps of Engineers one of our criteria is whether the annual benefits equal the annual cost, including intangible benefits such as loss of life.

Senator MALONE. Colonel Burns, it has been established that assurance of various interested organizations has been submitted to the Army Engineers.

Colonel BURNS. Yes.

Senator MALONE. But not from certain other interested organizations.

Colonel BURNS. That is right.

Senator MALONE. Then it would be necessary to proceed without them, or to have them come in later?

Colonel BURNS. Yes.

Senator MALONE. Now, supposing their comments did come in, say sometime in October or November. I understand it isn't a matter of lack of interest, at all, but merely a failure to get together. But if comments are received from those organizations and you then proceeded to coordinate the suggestions and come out with something considered feasible and desirable, with an estimate of cost, how long do you think it would take you to get such a report to the Congress?

Colonel BURNS. Well, of course you realize, Senator, that the interim report, which was completed in 1946, is now completely out of date as to benefits and costs. If we received comments, or we decided to proceed without comments from such local interests, we figure that it would take us from 3 to 4 months to bring the report up to date, which would include, of course, and up-to-date benefit-cost ratio. Now, that benefit-cost ratio would have to be relatively tentative, but it would be enough upon which we could base a decision as to whether we should go ahead and spend the additional money that would be required to thoroughly investigate dam sites, and, of course, from the information we got from drilling the dam sites, to develop our design in a preliminary way. It would depend on what we found in the way of economic justification whether we decided it would be worth while to go on and do these things. Now, if we found that the

project, either as we have it computed at this moment or with some variations, could not be economically justified, then we would not proceed with any further investigations.

Senator MALONE. Is it customary with the Army engineers to make their examinations on the basis of the ratio of benefits to cost?

Colonel BURNS. Yes. Even in the preliminary examinations—we might say special examinations—we make a very rough determination as to whether the project is worthy and, also whether it would be economically justified. In other words, we would at least determine whether, from general appearances and the information available, it would be economically justified. Now, when we get into the survey stage we have to make more thorough investigations. We may happen to run into a dam site that is quite simple, there are relatively few holes; again, if we run into a dam site which doesn't appear too satisfactory from the initial investigation, then we may be called upon to make a very much more thorough investigation, in order to be able to determine a reasonably firm price.

Senator MALONE. You have proceeded in that manner in this case; you did make preliminary examinations of the dam sites?

Colonel BURNS. Yes.

Senator MALONE. You simply drill until you do have some idea?

Colonel BURNS. That is right.

Senator MALONE. You are now in that situation, you have made your preliminary investigations on benefits and costs, since beginning the surveys in 1938?

Colonel BURNS. Yes.

Senator MALONE. Now it isn't necessary to make a new estimate; isn't that true?

Colonel BURNS. Well, of course it will also depend on the type of comments we get from local interests.

Senator MALONE. Let us suppose everything is agreeable.

Colonel BURNS. I would say a large part of the estimate would have to be revised. We couldn't assume, for instance, that the benefits would increase in the same proportion as the cost.

Senator MALONE. You would have to take another look at the benefits and cost. But that is not a long-drawn-out job, is it?

Colonel BURNS. No, sir.

Senator MALONE. It would be mostly on the increased cost from what you originally estimated, which we know is considerable?

Colonel BURNS. We would not be willing to stand by the estimates we have now, without further investigation of the sites, as to the subsurface.

Senator MALONE. You are not going to recommend anything until you know it is going to be a feasible project?

Colonel BURNS. No. What you mean is, what further investigations we will make to determine what you might term a permanent cost-benefit ratio?

Senator MALONE. Yes. Supposing everything is ready by October or November, what fieldwork do you have to do to start your office-work?

Colonel BURNS. We will have practically no fieldwork.

Senator MALONE. That was my point. Then what you have to do is to make a reconnaissance survey, and in 3 or 4 months we will be notified whether the benefits still are enought to justify the cost?

Colonel BURNS. Yes.

Senator MALONE. And after that it goes to Washington and is finally submitted to Congress, and we can proceed; is that true?

Colonel BURNS. To complete the survey in the form it is required, not only by the Chief of Engineer, but by the Congress, we have to include a firm estimate upon which we can stand. If the Congress decides they would like what you might term an interim report, or a program report, which would include up to the point where it was determined that the project is still or is not now economically justified, if Congress specifies what they want, we would submit the report.

Senator MALONE. After you had determined what the ratio of benefits to cost was, could the cost, perhaps, be toned down?

Colonel BURNS. Well, it is very true that even after a project is authorized, based on an estimate of cost in our report, that in the course of developing the definite program upon which the detailed design is based, we still may make a more complete report of subsequent exploration, whether we located a dam properly or not, and what the final cost of the dam is going to be.

Senator MALONE. Then you know whether it is feasible or not?

Colonel BURNS. Yes.

Senator MALONE. Now, in this case we have delayed the matter long enough, and to incorporate the project in an omnibus bill would mean further delay; is that true?

Colonel BURNS. It is true that an omnibus bill seldom comes out oftener than every 2 years. I believe 1950 was the last one.

Senator MALONE. That is true. Does anyone have any questions to ask Colonel Burns?

Mr. ERNEST J. KLEPPE (member of the Board of Washoe County Commissioners). Do the Army engineers have available any funds for clearing and snagging channels?

Colonel BURNS. We never had any fund of that type. If a request comes in from local interests, then we have our engineers examine the situation. If it looks as though it is needed, we frequently recommend to the Chief of Engineers that this particular project be authorized. Now, I can't tell you offhand, but I don't believe there is any such request in for the Truckee River.

Mr. KOCHIS. There is one for the Truckee River Basin.

Senator MALONE. Mr. C. C. Taylor, haven't you such an application in for the Washoe County Conservation District?

Mr. TAYLOR. Yes.

Senator MALONE. How long ago did you put it in?

Mr. TAYLOR. A month and a half or 2 months ago.

Senator MALONE. Colonel Burns, will you describe the procedure on that, for the benefit of the record?

Colonel BURNS. Usually the procedure is to write a letter to the district engineer, and the district engineer will reply as to whether he can go along with the request. The Chief of Engineers has all this money in his control, and if any project is approved by him he specifically allots the money, and if there is any money left over, that money is diverted to other projects that might be approved.

Senator MALONE. What law is that?

Colonel BURNS. The 1937 act is the basic law. And there is a limitation on it, that you can spend not to exceed $50,000 on any one thing in any one year. There is another act that authorizes the

construction of small flood-control projects, the cost of which will not exceed $150,000, without the specific approval of Congress, under a general law. There are four different ways we can spend money on emergency measures. If it is general clearing and snagging, and the cost will not exceed $50,000 and there has been no money spent on that particular stream in that fiscal year, then it is probable we would see fit to recommend it, and the Chief of Engineers may have a fund and authorize the work. What I suggest is to make your request to the district engineer and let him look into it.

Mr. ERNEST J. KLEPPE (member of the Board of Washoe County Commissioners). You said that the Army engineers' report requires $860,000 from the local interests. Supposing we find that maybe there is $250,000 or $300,000 of that, whatever it may be, will have to be raised by bond issue, and supposing the bond issue failed of approval in the election.

Colonel BURNS. Well, the money required on the part of the local interests is that required to purchase land easements, and so forth, that are required in connection with the main dam, and also the relocation of any existing facilities that might be in the way of the channel improvements. That is the policy of Congress, as you know, Senator. Now, I don't remember how the recommendations in this case are written up, but normally you just can't proceed with a project unless the local interests give assurances satisfactory to the Secretary of War that they will comply with the requirements of local cooperation included in the project approved by the Congress. It has nothing to do with authorization of the project, but we can't start construction until the local interests give assurances that they will meet those requirements. Now, in some cases the local interests have to actually do some physical work before we start; in other cases that isn't necessary. You understand I mean by "local interests" legal bodies, and if you do not have levee or flood-control districts, or some such organizations, provided by the laws of Nevada, that can give those assurances, I suggest that you have the bodies organized, if they are not already, so they can given the assurances.

Mr. KLEPPE. Why can't there be some method of separating the clearing and snagging of the channel from the rest of the project, so that can be done first, when the final answer will be the same?

Colonel BURNS. Bear this in mind: All the improvements to be made on this project are on the basis of upstream storage so that the flow will not exceed 12,000 second-feet. And, if you improve the channel up to a capacity of 12,000 second-feet, and then you have a 15,000- or 20,000-second-feet flood come down, the channel would not be adequate to carry it. We have had cases like that all along. Maybe on the lower river there are levees needed for the protection of farmlands, and they want them now, without waiting for the dam to be completed, but the height of the levees that would be necessary without upstream storage makes the cost prohibitive; we just can't do it. Sometimes the engineering difficulties make it almost impossible. That might not be true in this particular case. You are talking about removing the reefs, principally?

Mr. KLEPPE. Yes.

Colonel BURNS. I am not familiar with the details as to how much that would cost.

Mr. KLEPPE. I think the engineers' estimate was something like $250,000.

Colonel HAUG. I think that was the estimate we made last fall; I think we had a round figure of a quarter of a million dollars, to remove the reefs low enough.

Senator MALONE. Isn't that estimate rather high?

Colonel HAUG. No. We took the plans and made an agreed estimate. Isn't that true, Mr. Taylor?

Mr. C. C. TAYLOR (engineer of the Washoe County Water Conservation District). Yes.

Colonel BURNS. I think there is a little confusion here as to emergencies. It is true that under the Flood Control Act of 1938 the Chief Engineer is authorized, in an emergency, to install or restore existing flood-control works that are damaged or destroyed by floods. But in this case there are no existing flood-control works. So, it can't be considered an emergency, at least under that particular law. The only law under which this project might fit would be the one under which the Chief Engineer is authorized to construct small flood-control projects at a cost not to exceed $150,000. Now, those projects must be economically justified, and they must be complete in themselves, and not commit the United States to further operations.

Senator MALONE. Does anyone have any further questions?

Mr. WILL M. BLISS. At Lake Tahoe we have an organization known as the Lake Tahoe Chamber of Commerce. That does not cover everybody at the lake, but many of the property owners there. Would their recommendations have any bearing with you?

Colonel BURNS. I was talking about legal entities of local interests giving assurances that they will provide the cooperation required by Congress.

Mr. BLISS. I was just wondering who would represent the people at Lake Tahoe.

COLONEL BURNS. For what purpose?

Mr. BLISS. Making recommendations.

Colonel BURNS. You mean on our report?

Mr. BLISS. Yes.

Colonel BURNS. Anyone. We do not care whether it is a legal entity or not. Anyone at all.

Mr. D. J. FODRIN (mayor of the city of Sparks). I represent 9,000 people. I want to tell you what happened at Sparks. There were only 2 days, I think, when there was as much as 8,000 second-feet in the river this year; then it dropped. But we had to put out sandbags, and the State Highway Department had to stop their highway work. We had to sandbag our sewage-disposal plant. And I would like to submit a report on that, representing the city of Sparks. That has gone on year after year, and it affects 9,000 people in Washoe County.

Senator MALONE. You will have an opportunity to submit a statement later, Mr. Fodrin. Are there any other questions?

Mr. F. R. BREEN (representing Nevada State Fish and Game Commission and others). It has been stated that in the overall consideration of this matter it was felt that the benefits outweighed the costs, in considering the benefits on other aspects of this program. What consideration was given to the fish life in the river as it exists now as compared to the conditions under your plan?

Colonel BURNS. As I recall, we took no credit for any improvement of the water conditions in the interest of fish.

Mr. BREEN. Did you consider that factor?

Colonel BURNS. As I recall, we considered that that was a benefit that we did not evaluate—one of those intangible benefits that is rather difficult to evaluate.

Mr. BREEN. Was any attempt made to evaluate that?

Colonel BURNS. No evaluation.

Mr. BREEN. Do I understand the Army engineers' position to be that, as far as the effect of this project on the fish life in the Truckee River is concerned it has not been a concern of the engineers in drawing up the plans?

Colonel BURNS. Well, except insofar, as explained, it provides there will be a minimum flow at all times of 52 cubic feet per second.

Mr. BREEN. Now, is that incidental or planned?

Colonel BURNS. Planned.

Mr. BREEN. Now, can you tell us just what investigations, if any, were made in reaching that part of your report, or plan, where you provide for a minimum flow of 52 cubic feet per second?

Colonel BURNS. I will let Mr. Kochis answer that.

Mr. KOCHIS. It was discussed with the Fish and Wildlife Service. We analyzed the reported low-water flows, examined wants, and, to the best of our judgment, we selected the 52-cubic-feet flow.

Mr. BREEN. As a matter of fact, you haven't received the opinion of any fish technician from this area as to the effect of that flow on the fish life in that area?

Mr. KOCHIS. We have received comments from the California Fish and Game Department. In 1946 they commented on the flow and the advisability of it.

Mr. BREEN. Was that included in your 1946 report?

Mr. KOCHIS. They reviewed the draft, and made comments.

Senator MALONE. I wonder if you can make a copy of their comments available to this committee?

Mr. KOCHIS. Yes.

Senator MALONE. Is that satisfactory, Mr. Breen?

Mr. BREEN. Yes.

Senator MALONE. On page 27 of your report it is stated that no provision has been made for fish ladders. How did you reach that conclusion?

Mr. KOCHIS. It was our understanding that they were not necessary. If we were in error, we would like to be corrected.

Colonel BURNS. That is the kind of comment we like to receive.

Senator MALONE. Yes. I am particularly impressed that since the hearing started there has been very little attention paid to your report. Mr. Breen's questions are to the point, and it is up to Mr. Breen and his associates to get in any comments or suggestions they see fit, in order to do their duty to their positions, to make all things clear, to find out exactly what the plan is that is proposed.

Mr. BREEN. Mr. Kochis, where is this 52 cubic feet of water to be, where will the measurement be taken, and what will be the overall effect on the bed of the Truckee River between the point of diversion and the point where the diverted water would be returned to the river?

Mr. KOCHIS. I do not recall the details of the operation, as to exactly where the 52 cubic feet starts or how far it goes down the river in particular seasons of the year. If a representative of your office will come to our office, we will be very happy to go over our records and give you any further information we can.

Mr. BREEN. I wonder if we could get a written statement from the Army engineers as to just what this plan involves insofar as the flow of water in the Truckee River is concerned. Unless we have a definite plan, and our technicians consider that plan, we can't properly evaluate it and make our recommendations. In other words, it would take more than 1 day's visit with you people to properly understand it and evaluate it.

Senator MALONE. Colonel Burns, the chairman believes that the fish life in the Truckee River is very important, and is becoming more important each year, and I know from past experience that it is not the intention of the Army engineers to impair it. Would it be possible that in a week or 10 days the details of the plans for the minimum flow, the fish ladders, and plans to improve, or at least to preserve, the fish life in the Truckee stream system could be presented as an exhibit?

Colonel BURNS. I believe that is perfectly feasible. I don't know how much work is involved in that.

Senator MALONE. If there are no more questions to be asked the Army engineers at this time, the Lake Tahoe Water Users' Association, represented by Col. A. M. Barton and Mr. Will M. Bliss, will be heard next, because they have to leave.

Col. A. M. BARTON (appearing as attorney for the Lake Tahoe Water Conference Committee). I have a very short statement, which I would like to have incorporated in the record.

Senator MALONE. The statement will be accepted, and incorporated in the record.

STATEMENT OF COL. A. M. BARTON, CHAIRMAN, LAKE TAHOE WATER CONFERENCE COMMITTEE

Colonel BARTON. For the past 28 years I have been chief engineer and general manager of the Reclamation Board of California, designated by law to cooperate with the Federal Government in planning and construction of flood-control works on the San Joaquin and Sacramento Rivers. I request that this statement be accepted and appear in the official record of this hearing.

The Lake Tahoe Water Conference Committee has 3 members from California and 3 from Nevada, each appointed by the Governor of the respective States.

Since 1900 Lake Tahoe's maximum elevation has been fixed at 6229.1 feet. In several different years during this time the lake level reached the elevation of 6,228 feet, 24 times. The highest elevation was 6,231.26, recorded in July 1907. The minimum, 6,221.68, was in December 1931. The elevation is a matter of regulation. Your court decree, the agreement known as the Truckee River agreement, was the law during this time.

Now, I want to get the facts separated, as to the plan of the Corps of Army Engineers. First, as far as storage is concerned, Lake Tahoe

is removed from the picture, and 6,228 feet would be arrived at as the new level; the former storage in Lake Tahoe, 135,000 acre-feet, is removed bodily and channeled into Prosser Reservoir. The project generates 33,000 kilowatts of installed power, amounting to 150 million kilowatt hours; that is the second part of the project. The third part is 3,000 acre-feet of additional water on existing cultivated acreage or new acreage.

The Lake Tahoe Water Conference Committee consists of the following: Three representatives from California, appointed by the California Governor, consisting of Harry O. Comstock, of Brockway, Calif., Mr. George Kehlet, of Meeks Bay, Calif., and Mr. Charles Young, of Bijou, Calif.; and the Nevada representatives, appointed by the Governor of Nevada, Will M. Bliss, of Glenbrook, Nev., George T. Devore, Reno, Nev., and James W. Johnson, of Fallon, Nev.

This committee was created in 1934, as an advisory body, in an endeavor to adjust various differences existing between the Lake Tahoe resort owners, irrigation and power interests and other users. relative to the use of Lake Tahoe water. During the past 18 years the Lake Tahoe Water Conference Committee has had presented to it 4 preliminary plans, all of which pertained to the present method of regulating the reservoirs.

Colonel BARTON. That concludes my statement.

(The prepared statement referred to above is as follows:)

STATEMENT OF COL. A. M. BARTON, CHAIRMAN, LAKE TAHOE INTERSTATE CONFERENCE COMMITTEE

My name is A. M. Barton. For the past 28 years I have been chief engineer and general manager of the Reclamation Board of California, which, in addition to other functions, is the State agency designated by law to cooperate with the Federal Government through the Corps of Engineers in the planning and construction of flood-control works on the Sacramento and San Joaquin Rivers and their tributaries.

Pursuant to notice of public hearing dated August 13, 1952, signed by Senator Dennis Chavez, chairman of the Committee on Public Works, and in compliance with an invitation of the Honorable George W. Malone, addressed to me under date of August 14, 1952, I am appearing before this committee in my capacity as chairman of the Lake Tahoe Interstate Water Conference Committee. I respectfully request this statement be inserted in the official record of this hearing.

This committee consists of 3 representatives from each of the States of California and Nevada and was created in 1934 by the respective Governors of California and Nevada as an advisory body with the undersigned as chairman in an endeavor to adjust various differences existing between the littoral lake owners irrigation and power interests and Federal agencies relative to the use of Lake Tahoe waters.

During the past 18 years the Lake Tahoe Interstate Water Conference Committee functioning as an open forum for all interests concerned has had presented to it 4 preliminary plans all of which involve the use of Lake Tahoe as a storage or regulating reservoir as follows:

1. Corps of Engineers United States Army.
2. United States Bureau of Reclamation plan of development for the Washoe project.
3. California Division of Water Resources Study.
4. Truckee-Carson Water Users Committee plan of development.

The Corps of Engineers is carrying on its investigation under specific congressional authority. The details of the Army's plan will doubtless be outlined to your committee by a representative of the corps. In the Army's original report the first cost of the various improvements was estimated to be $13,360,000, of which $12,498,000 would be borne by the Federal Government and $862,000 by local interests.

Many of the items involved, the Lake Tahoe Interstate Conference Committee is informed, have been subsequently reinvestigated by the Corps of Engineers,

and costs thereof reestimated so that as of May 1951 the total Federal and local interest cost of this project was found to be in excess of $19,000,000. Furthermore, a partial appraisal of the cost-benefit ratio by the Corps of Engineers on a current basis indicates that due to cost increases, the project may not now be justified.

Several alternate plans have been studied by the Corps of Engineers. None of these have been presented in detail to the Tahoe Conference Committee. All of these proposals had two objectives in common: namely, the provisions of substitute storage space to balance reduction in the storage capacity of Lake Tahoe that would occur if the lowering of the present legal maximum lake level for prevention of attendant damages is to be achieved; and also improvement of the Truckee River Channel for control of floodwaters through Reno, Nev., and the Truckee Meadows area. In pursuing these studies, the related problems of power development, irrigation and drainage, were also considered by the Corps of Engineers.

The United States Bureau of Reclamation's investigation of the Washoe project is currently under study, as are likewise the California Division of Water Resources investigation and that of the Truckee-Carson Water Users Committee. All of these proposals I assume will be outlined for the record during this hearing.

In view of the foregoing, it will be obvious to your honorable committee that, until such time as these various plans currently under study, have been presented in their final form to the Lake Tahoe Interstate Water Committee for their consideration, it will be impossible for this organization to take such formal action as it may deem advisable relative to an endorsement, and appropriate action leading to the execution of the proposal that will in its judgment best conserve the general interest with least injury to individuals.

Senator MALONE. I believe it has been testified here that no adequate regulation of the lake can be had under the present method; is that correct?

Colonel BARTON. I think so. Since 1900 the elevation has exceeded the maximum of 6,229.1 seven times.

Senator MALONE. Isn't it just as easy to regulate the water at 6,229.1 as it would be to regulate it at 6,228?

Colonel BARTON. That is right.

Senator MALONE. Then it is a matter of regulation, and not a matter of lowering the lake level a foot?

Colonel BARTON. It is my opinion, also, that it is a matter of regulation.

Senator MALONE. I want to get the facts straight, for the record. You actually represent only the members of the Lake Tahoe Water Conference Committee?

Colonel BARTON. Yes, an advisory committee, only.

Senator MALONE. Now let me ask you, the court decree and the Truckee River agreement between the Washoe County Water Conservation District, the Sierra Pacific Power Co. and the Truckee-Carson Irrigation District is the law at this time, the agreement between those three parties?

Colonel BARTON. That was so stipulated.

Senator MALONE. In other words, if such a stipulation could not have been procurred, the lake level couldn't be touched?

Colonel BARTON. I am not speaking as an attorney, because I am not one.

Senator MALONE. As you know, in the United States Senate I had considerable to do with the organization of the Washoe County Conservation District and the negotiations leading up to the consummation of the Truckee River agreement.

Colonel BARTON. That is right.

Senator MALONE. And I think I can safely say there can be no change in that agreement without a further stipulation.

Colonel BARTON. I think that is right.

Senator MALONE. Now, we notice that the report of the Army engineers boils down to taking 1.1 feet from the top of Lake Tahoe—in other words, it is removed from the picture—and 6,228 feet would be arrived at as the new level, and the water above that level would be removed, bodily, to the Prosser Reservoir. In other words, there is no apparent reason for the construction of the Prosser Reservoir other than to take that water from Lake Tahoe?

Colonel BARTON. That is my conception of it.

Senator MALONE. And 33,000 kilowatts of power would be generated, 150,000,000 kilowatt-hours, as part of the project?

Colonel BARTON. Yes.

Senator MALONE. And the third part of the project, apparently, is 3,000 acre-feet of additional water made available for irrigation, either as supplemental water for existing cultivated acreage or for new acreage, as the case may be.

Colonel BARTON. Yes.

Senator MALONE. Now, what would be your opinion of the benefits of the project, outside of those three named, as chairman of the committee appointed by the Governor of Nevada and the Governor of California?

Colonel BARTON. That is a hard question to answer without full knowledge of the Army's evaluation of the benefits. It depends slightly on whether or not the Federal Government writes off all the flood-control benefits, or doesn't. Now, I am not clear in my mind as to what they are going to do about that. And I might point out to you that the so-called Interstate Committee's views have been more or less exposed to public view in the letter written by Mr. Will Bliss, some years ago. Now, it has been brought out this morning that the cost has risen sky high, and it looks as though the whole economic study has been thrown out of line, and until such time as we get something more definite as to the Army's proposal we can't come to any conclusion. Now, the Bureau of Reclamation has a program here they are working on with the Water Users Committee of Nevada, and before I can make an intelligent comment on the Army's report I would like to know more about what these other reports will bring forth, and see if there are some features that might be in competition with the Army's report.

Senator MALONE. As to the Army's report, it seems to me that your committee could very well have had it before this, or could now have it. And I believe now we are about to hear the Reclamation Bureau engineers, so you could take it all into consideration. Your suggestions must be made to the Army engineers based on their report. You are ready to do that when you get their ideas?

Colonel BARTON. That is correct. We are in no position now to take any intelligent action, because we haven't got the full facts before the committee.

Senator MALONE. Do you have any further statements, Colonel Barton?

Colonel BARTON. I was going to mention something I don't think anybody has touched on yet, in regard to damages at Lake Tahoe. During the 12 years of record prior to 1950 there have been 2 damaging rain floods and 3 damaging snow-melt floods on the Truckee River, and I think the damage amounted to $3,250,000, according to the

estimate of the Army engineers. Furthermore, I want to call attention to the fact that during 1951 the high water elevation prevailing at Lake Tahoe, combined with wave action caused by high winds, caused $200,000 damages to septic tanks and shore lines.

Senator MALONE. Did the lake exceed the legal level during that period?

Colonel BARTON. No.

Senator MALONE. What do you mean by damages? Who would you sue? The United States Government?

Colonel BARTON. I did not speak of a suit for damages.

Senator MALONE. Could those damages be attributed, to some extent, to building done during periods of low water level in the lake?

Colonel BARTON. Yes. I might say that back in 1930 our friend Tom King made a survey of the shore line to determine what the elevations were of the various installations around the lake, and one result was that it was determined there were 22 piers above the elevation of 6,230, and 16 that were below 6,230.

Senator MALONE. The 22 were at an elevation where they would not be damaged unless the elevation of the lake exceeded 6,229.1 feet?

Colonel BARTON. Yes. Last summer the conference committee, in an effort to alleviate this damage, issued a warning to owners they should get their installations along the shoreline well above 6,229.1.

Senator MALONE. By "well above" what do you mean?

Colonel BARTON. I mean above the 6,229.1, the maximum legal elevation of the lake.

Senator MALONE. What do you think should be the minimum elevation of the installations?

Colonel BARTON. I would say not lower than 6,230 feet.

Senator MALONE. If the lake level were lowered 1.1 feet for the benefit of the piers that are built too low, you would still have the problem of regulation that you have now at 6,229.1 feet?

Colonel BARTON. If the maximum elevation would be held to 6,228 there is the problem of disappearing beach lines. As you know, there is a tremendous amount of money invested there, in resorts, and at an elevation of 6,228 I think I am safe in saying that a majority of the beaches would disappear entirely. Now that, of course, is not a major catastrophe, but it should be avoided.

Senator MALONE. I can't understand why that would be when in 23 out of 24 years the lake was kept at the legal maximum elevation.

Colonel BARTON. Lately there has been so much development there that, with the passage of time and repeated high elevations of the lake, that damage is going to increase year by year. Now I will say Mr. Will Bliss is here, and he was the chairman at the time we made the report for the water level study committee of the Sierra-Tahoe Water Association, and, as I said before in my testimony, I think the views expressed in his letter, which comes to the Army engineers as of this date, express the views of the Interstate Committee in regard to the Army engineers' report, and I suggest you ask Mr. Bliss to take the witness chair.

Senator MALONE. Colonel, how did they arrive at the level of 6,229.1?

Colonel BARTON. Oh, before the 1915 decree was modified, and our committee had considerable to do with the modification thereof, and it was the agreed limit at that time, it was stipulated that the water

would not go above 6,229.1 feet. Now, there was a great deal of debate, and you were State engineer of Nevada at the time; I recall you were there, representing the State of Nevada and the Governor, and asked the committee to poll, as far as possible, every individual that owned land on the California shoreline, and get their views as to the elevation. I don't want to burden you with a lot of details, but I will say the committee polled them, and we found that a majority of the people were in favor of 6,229.1 feet, at that time. We figured that was the best deal we could get, and we accepted it.

Senator MALONE. If there are no further questions to be asked, Colonel Barton, we will hear from Mr. Will M. Bliss.

STATEMENT OF WILL M. BLISS, LAKE TAHOE WATER CONFERENCE COMMITTEE

Mr. BLISS. I would like to argue with Colonel Barton about the question of damages as between 6,228 and 6,229.1 feet. The damage to the structures was because we went through a great many dry years, and a great many people built during those dry years, and did not go to the trouble of finding out what the maximum elevation was. Those same people are not going to make the same mistake again.

Senator MALONE. Under the present regulation the maximum elevation is 6,229.1 feet?

Mr. BLISS. Yes. Another thing; to my mind the main damage was the covering up of beaches. There are many beaches between 6,228 and 6,229.1 feet. That is something we can't help, with the maximum set at 6,229.1. They are intangible damages you can't figure, but there would be a tremendous benefit if the lake could be held at 6,228. I have forgotten how long ago it was that I was talking to some Army engineers, and they wanted to know what our damages were. We can't tell; they are intangible; we have a beach, then the level of the lake goes up to 6,229.1 feet and we have no beach, particularly if the wind blows. If the elevation stays at 6,229.1, year in and year out, it is certainly damaging to our business; I can't say how much.

Senator MALONE. How long does the lake usually remain at the maximum after it reaches that point?

Mr. BLISS. The maximum elevation comes at different times of the year. Normally it comes around the 1st of July, and I would say in 3 or 4 weeks it goes down about 5 or 6 inches. This year it hit the maximum, I think, on the 8th or 9th of August, a maximum of 6,228.89. As of yesterday, it has gone down to 6,228.84, I think. That isn't very much. Our damage is an intangible damage, that becomes more and more as the lake is held high.

Now, Colonel Barton suggested that I read a letter that I wrote while representing the Lake Tahoe-Sierra Water Association, in 1948, commenting on the interim report of the Army engineers. I would like to bring out a few recommendations contained in the communication, as follows: (1) We recommended stabilization of the Lake Tahoe water surface, both low and high, as to give the most benefit to the residents at Lake Tahoe and the water users on the Truckee River; (2) that the maximum lake level be held at 6,228 feet; (3) that the natural rim of the lake remain at an elevation of 6,223.3, and that the natural rim of Lake Tahoe be not disturbed in any manner. The fourth recommendation was that the committee further recom-

mended a study of the advisability of the installation of pumps at the outlet of Lake Tahoe. Now, at this point I would like to bring out one fact I think everybody knows; the property owners at Lake Tahoe, for years, have fought against disturbing the natural rim in any manner. The thought behind that is that if the natural rim is once changed by any means, it might continue to be changed, and eventually there will be a strip of land laid bare, by the artificial means of changing the rim. In other words, the property owners who now have lake frontage would have no lake frontage. That is the reason we don't want the rim disturbed. There have been occasions when the lake got down to 6,223 feet, and the downstream interests needed water badly, and the property owners at the lake allowed pumps to be installed to relieve the water users downstream, and we are of the opinion that this should be done in the future. It has been done in the past, and if the people downstream run into such trouble again, I think it is very probable we would do everything we can to help them.

There is another thing I am particularly in favor of myself, and that is that the property owners at Lake Tahoe and the downstream owners get together, so we will have something to set our teeth into, and do all we can to save what we think are our rights under these projects. Also, speaking for myself alone, I am not interested in tunnels. But, of course, we can't say anything about that until we get the final answer on some of these projects. Further, I don't see why any part of the $860,000 should be assessed against the Lake Tahoe water users, in view of the trouble they have had the last few years at Reno and vicinity; I think the damage is downstream. In conclusion, I would like to congratulate the people who operated the gate at the outlet of Lake Tahoe this year; the precipitation was higher this year than any year since 1889–90, and I believe the lake would have gone above 6,229.1 if the gate had not been properly operated.

Senator MALONE. If there are no questions to be asked Mr. Bliss, we will hear from Harold T. Johnson, California State senator.

Mr. HAROLD T. JOHNSON (State senator from the Seventh District of California): Referring to the report of the Army engineers of 1946 on their proposed project in Nevada County and Placer County, we naturally are not very much interested, other than as pertains to fish and wildlife. To my knowledge, most of the people around the lake would be satisfied with the lowering of the water level 1 foot; most of the people I talked to there are of that opinion. But there is great concern as to the amount of water allowed to flow down the stream after the proposed diversion is made. We fully realize in our area that the Truckee River is one of our greatest fishing streams, and just recently the State of California has been much concerned with the flow of that stream. A week ago the streamflow in the upper reaches of the river was so low that it was advisable not to plant any fish in that area. When consideration is given to the building of this project, the people responsible should certainly see that the flow remaining in the stream is adequate for fish life. Now most of the sportsmen are not satisfied with the amount allowed to flow down the river from Lake Tahoe. I think the objection raised by the California Division of Fish and Game is a logical one, and one that the Army engineers are going to give adequate consideration. And, almost everyone concerned with the waters of Lake Tahoe and the people along the

Truckee River are certainly interested in the same thing. So, Senator, if you propose the legislation, I hope you will see fit to look into the maintaining of an adequate flow for fish life in the stream.

Senator MALONE. We thank you very much, Senator.

Senator JOHNSON. I have a brief statement here from the president of the Truckee, Calif., Chamber of Commerce, which I would like to have incorporated in the record.

Senator MALONE. It may be incorporated in the record.

(The matter referred to follows:)

THE TRUCKEE CHAMBER OF COMMERCE,
Truckee, Calif., August 26, 1952.

Senator GEORGE W. MALONE,
Reno, Nev.

DEAR SENATOR: At this time the people in this area, both businessmen and residents, have urged this organization to present certain pertinent facts regarding the Truckee River before this meeting.

This area by nature of its location and geographical surroundings is ideal for recreation and fishing purposes, and we strongly urge that whatever results come from any future planning on the natural resources of this region that due regard be given the many people who use this area for vacation and recreational purposes.

One of the main points in this regard would be to make certain that an adequate flow of water in the Truckee River is maintained all the year; especially with regard to the natural propagation of fish.

At the present time not enough water is flowing in the upper part of the Truckee River to maintain and propagate the fish population, which are enjoyed by many citizens of all the States.

The citizens and members of this organization have asked that a letter be written to be entered in the record, for the consideration of the proper authorities.

Thanking you in advance,

R. E. SMART, *President.*

Senator MALONE. We will have the United States Bureau of Reclamation next.

Mr. HOLLIS A. HUNT. I am Hollis A. Hunt, of the United States Bureau of Reclamation, Lahonton Basin area office, located at Carson City, Nev. And I have with me Mr. W. D. Maughan, my office engineer, in the same office, and Mr. A. K. Long, the office hydrologist. I have here a prepared statement I would like to present for the record.

Senator MALONE. Thank you. It may be accepted for the benefit of the record.

(The statement follows:)

STATEMENT OF HOLLIS A. HUNT, BUREAU OF RECLAMATION

The Bureau of Reclamation has participated in the investigation and development of the Truckee and Carson Rivers since passage of the Reclamation Act in 1902. The Bureau constructed the Newlands project beginning in 1905 and constructed the Truckee River storage project in the mid-1930's. Since 1945 many other single-purpose developments have been investigated but due to lack of unified support or adverse benefit-cost ratios, none have been constructed.

During 1950 the Bureau of Reclamation, region 4, initiated investigations of several plans for Truckee and Carson River development, the results of which were presented in the Washoe project reconnaissance report dated February 1951. From these studies reflecting present-day high-construction costs, it became evident that only a joint Truckee and Carson River development largely for irrigation, flood control, and power would be economically justified.

The investigation of what is now termed the "Washoe project" is being conducted in cooperation with the local water users, the Corps of Army Engineers, and other local, State, and Federal organizations. The Bureau recognizes that continued growth of the area near these streams is dependent to a large degree on additional control and use of available water supplies. This is true not only of the farming areas and cities but also of the outstanding recreational sites such as Lake Tahoe. All of the waters of the two rivers, except floodwaters, are now

appropriated and controlled. The uncontrolled floodwaters become more and more damaging as the area develops, but at the same time become more valuable for future use. In November 1950 the rampaging Truckee and Carson Rivers caused millions of dollars of damage. In Reno alone the damage exceeded $2 million.

The objective of the Bureau's investigation is to develop the best multiple-purpose plan for conserving the floodwaters for irrigation, municipal, power, recreational, and other purposes and at the same time to prevent flood damages along the river channels and at Lake Tahoe. In the course of the investigation, the Corps of Engineers has been frequently consulted, data and survey information exchanged, and duplication of effort avoided. Flood damages, flood-control benefits, and flood-control features developed by the corps are being incorporated in the plans of the Bureau.

The Bureau of Reclamation's first problem was to decide on the scope of the project development. To this end three major alternative plans are being considered. The results of the Bureau's studies are to be reported in the Washoe project status report scheduled for completion in October 1952. The report will show the relative irrigation benefits, flood control afforded, power developed, costs and the overall benefit-cost ratio. A brief summary of the three plans follows.

Plan 1 would include the construction of 5 dams and reservoirs, 7 power plants along with the system of diversion dams, tunnels, pipelines, canals, laterals, and drainage works. Two reservoirs and two power plants would be on the Truckee River system: namely, Prosser and Stampede Reservoirs and the Mystic and Stampede power plants. Two reservoirs and three power plants would be located on the upstream reaches of the Carson River. These would be the Watasheamu Reservoir and power plant on the East Fork and Hope Valley Reservoir and Woodfords and Paynesville power plants on the West Fork. Another dam and reservoir would be constructed in Washoe Valley and the top 1.1 feet of water stored now in Lake Tahoe transferred to it through a tunnel approximately 4 miles long. The tunnel would be nearly level and the inlet designed so that the lake could not be drawn down below the present rim elevation of 6,223. Water flowing through this tunnel and the 1,150-foot drop into Washoe Valley would be used to generate power at the Franktown power plant site. Releases from Washoe Reservoir would be routed by a short tunnel and a canal to the Carson River near Empire where the Eureka power plant would be constructed. Initial studies of this plan indicate that it would provide optimum control of damaging floods on both the Truckee and Carson Rivers, reduce fluctuation of Lake Tahoe water levels to between 6,223 and 6,228, provide late-season supplemental water to about 30,000 acres of land and a full supply to 20,000 acres of new land, generate approximately 325 million kilowatt-hours of hydroelectric energy annually, provide drainage for about 40,000 acres of land, and improve recreational and fish and wildlife opportunities in the area. In cooperation with the Corps of Army Engineers, improvements would be made to provide an outlet for drainage works from the Truckee Meadows. Under this plan the rock reef near the outlet of Reno Valley would be removed.

Plan 2 is the same as plan 1 except that the top 1.1 feet of storage capacity in Lake Tahoe would be transferred to a larger Prosser Reservoir instead of to Washoe Valley. This plan would have less storage and consequently fewer irrigation and power benefits. No new lands could be irrigated but the same supplemental water and drainage benefits would result. Since the Washoe Lake development would be eliminated the Franktown and Eureka power plants would also be eliminated. With an enlarged Prosser Reservoir a Prosser power plant would be constructed. Power generation would be about 260 million kilowatt-hours annually. Flood control benefits would be about the same as under plan 1.

Plan 3 is the plan proposed by the Truckee-Carson Water Users' Committee. It consists of 3 dams and reservoirs and 4 power plants with no additional features. Two dams and reservoirs would be built on the Truckee River at the Prosser and Stampede sites and would be used for flood control, water conservation, and power production. Power plants would be located below Prosser Dam at Floriston and at Hirschdale, and a new high-head plant would be located near Verdi. One dam would be built on the Carson River at the Watasheamu site and would be used for irrigation and flood control. Some supplemental water for irrigation and about 145 million kilowatt-hours of power annually would result from adoption of this plan.

When the status report is completed all interested parties will have an opportunity to review and comment on the various plans. A decision will then be made as to which plan or portion thereof should be supported. Investigation of the selected plan will then be completed and a feasibility report will be prepared.

Senator MALONE. Can you state approximately what amount of power would be developed at these sites?

Mr. HUNT. Going back to the Stampede power plant, we would have 4,500 kilowatts of installed capacity.

Senator MALONE. That is in both the Mystic and Stampede power plants?

Mr. HUNT. One, the Stampede. The Mystic would be larger, and would have 11,500 kilowatts of installed capacity. In the plants below the Hope Valley site there would be 5,000 and 6,000 kilowatts, respectively.

Senator MALONE. A total of 11,000?

Mr. HUNT. Yes.

Senator MALONE. Have you the load factor?

Mr. HUNT. It is about a 65-percent overall load factor. We did not break down the kilowatt-hours.

Senator MALONE. Will you make the number of kilowatt-hours available for the record?

Mr. HUNT. At the Watasheamu plant it would be 7,000 kilowatts. Now, we have another reservoir site in Washoe Valley, where we would divert water from Lake Tahoe including the transfer of the top 1.1 feet, by a tunnel approximately 4 miles long, and drop that water 1,150 feet down into Washoe Lake, and that plant would have a 15,000 kilowatt capacity. From that reservoir water would be diverted directly, by a tunnel and canal, into the Carson River, and in so doing it would drop through another power plant, with a capacity of approximately 7,000 kilowatts.

Senator MALONE. Now would you give us the load factor and the number of kilowatt-hours?

Mr. HUNT. The total for the plan would amount to 323 million kilowatt-hours annually, of which 202 million would be firm energy, and the remainder would be of a secondary nature. Now, this plan also would furnish supplemental water to about 30,000 acres of land in the Carson River area presently irrigated, clear down to Lahonton Reservoir, and, in addition to that, would irrigate 20,000 acres of new land.

Senator MALONE. The Washoe Lake plan would allow upstream water in the Carson River to be used there, that now runs down into Lahonton Reservoir? In other words, it would furnish water to Lahonton Reservoir in lieu of upstream Carson River water?

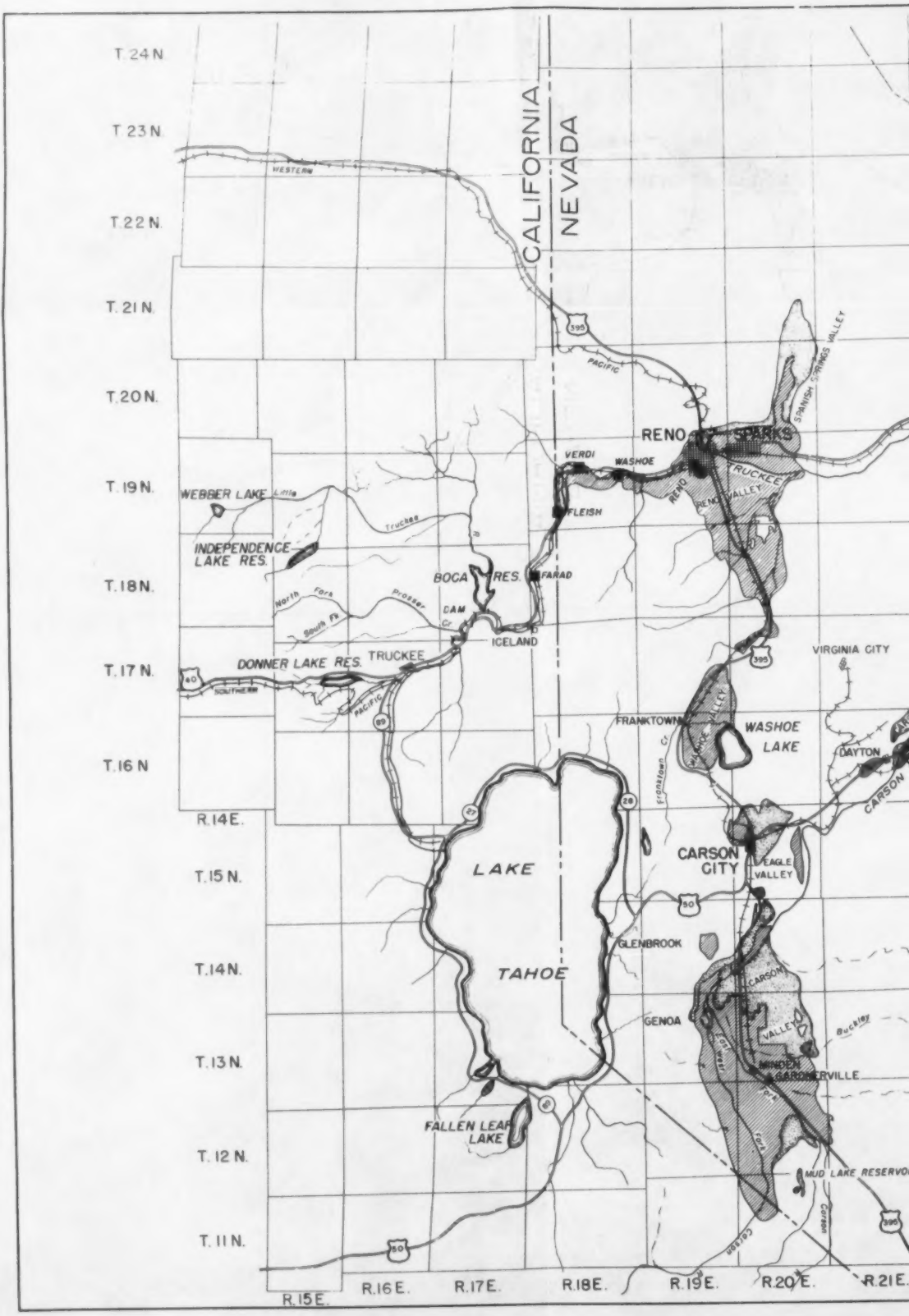
Mr. HUNT. That is true. Most of the floodwater or surplus water is in the Truckee River, and for that reason we deem it advisable to transfer water from the Truckee into the Carson, where the need for supplemental water exists.

Senator MALONE. You mean there is surplus water in the Truckee River, that couldn't be used in that watershed?

Mr. HUNT. Floodwater, yes. Some of it can be used, and we anticipate some of it will. There is enough in the system for 20,000 acres of new land, most of it on the Carson system; they are floodwaters that can't now be controlled by existing facilities. Under plan 1, Prosser Reservoir will be used only to control the flow and store floodwater there for future use.

Senator MALONE. Would the Prosser Reservoir be larger than the one the Corps of Army Engineers recommend?

Mr. HUNT. No; smaller, 40,000, instead of 135,000 acre-feet.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RENO
SPARKS
VERDI
WASHOE
TRUCKEE
RENO
PENN VALLEY
SPANISH SPRINGS VALLEY
FLEISH
WEBBER LAKE
Little
Truckee
INDEPENDENCE LAKE RES.
BOCA RES.
FARAD
North Fork
Prosser
South Fk.
DAM
Cr.
ICELAND
DONNER LAKE RES.
TRUCKEE
SOUTHERN
PACIFIC
VIRGINIA CITY
FRANKTOWN
WASHOE VALLEY
WASHOE LAKE
DAYTON
Ophir Cr.
CARSON
CARSON CITY
EAGLE VALLEY
LAKE
TAHOE
GLENBROOK
GENOA
CARSON VALLEY
Buckley
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MINDEN
GARDNERVILLE
Pine
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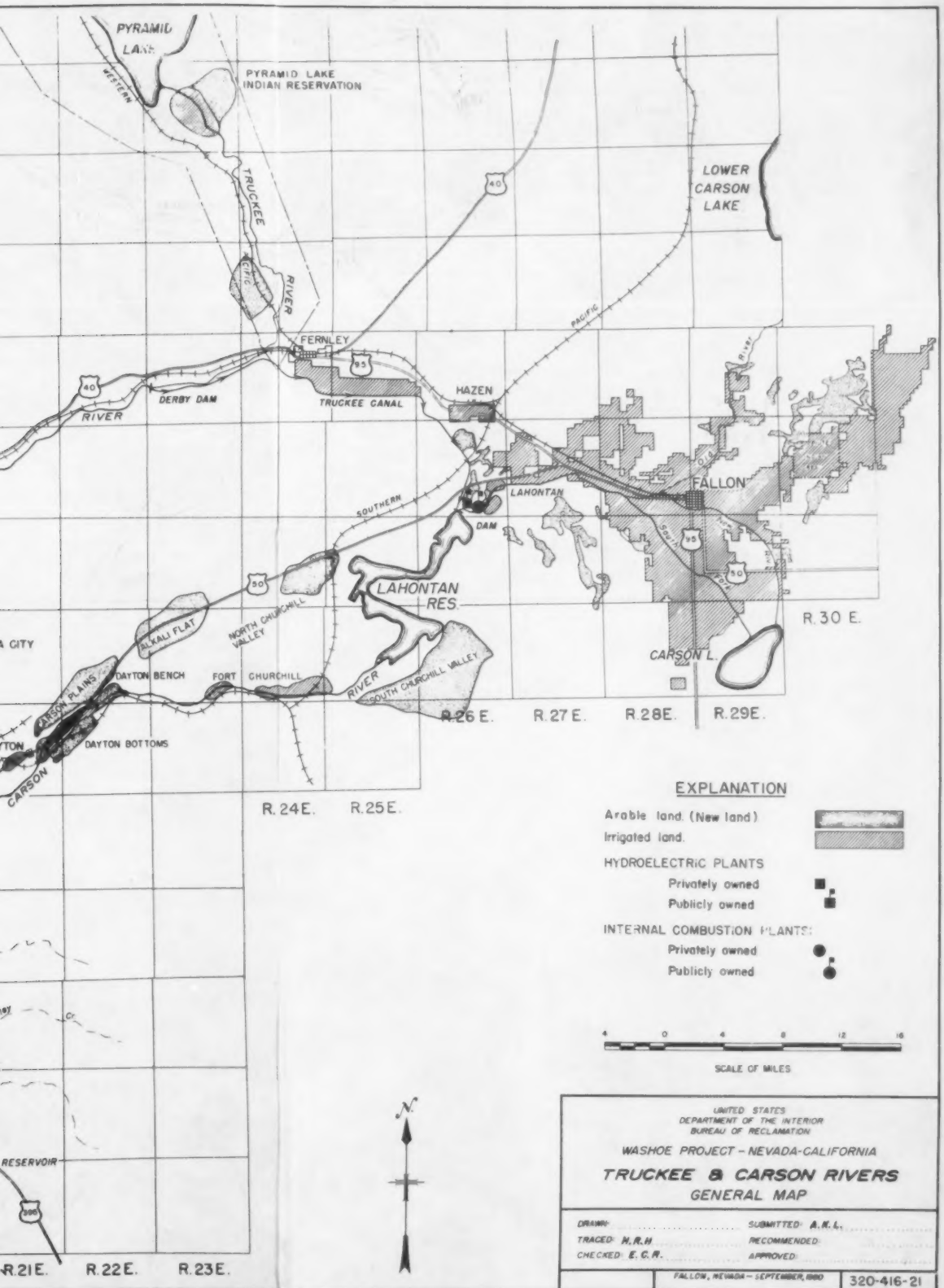

EXPLANATION

Arable land. (New land)

Irrigated land.

HYDROELECTRIC PLANTS

Privately owned

Publicly owned

INTERNAL COMBUSTION PLANTS:

Privately owned

Publicly owned

4 0 4 8 12 16

SCALE OF MILES

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

WASHOE PROJECT – NEVADA-CALIFORNIA

TRUCKEE & CARSON RIVERS

GENERAL MAP

DRAWN:	SUBMITTED: A.N.L.
TRACED: H.R.H	RECOMMENDED:
CHECKED: E.C.R.	APPROVED:

FALLON, NEVADA – SEPTEMBER, 1960 | 320-416-21

Senator MALONE. What size dam?

Mr. HUNT. I think 150 feet.

Senator MALONE. What is the comparison of costs?

Mr. HUNT. Ours would cost much less. In addition, we anticipate the removal of the reefs from the Truckee River, in the Vista area, in conjunction with the Army engineers, and draining about 12,000 acres in that area. At the same time, in the Carson Valley there is an area to be drained. Through this drainage we would save water and actually make some new water available. I believe that covers our plan 1. By it we would be able to control floods on the Carson and Truckee Rivers, and high water in Lake Tahoe.

Senator MALONE. Could you submit, as an exhibit, a map showing plan 1 and showing the estimated cost?

Mr. HUNT. Yes. One thing I didn't read, in my statement, is that we are preparing to furnish a report which will discuss these plans in detail, and which will be completed by the end of October.

Senator MALONE. Could you present the map now, as an exhibit, and at the end of the 60 days send the report to the committee?

Mr. HUNT. Yes, sir.

Senator MALONE. Rather than consider your written statement as an exhibit. The map and the estimate of cost will be considered as exhibits.

Mr. HUNT. It must be recognized that these estimates are reconnaissance-type estimates, and have not been reviewed by our office in Denver. Now, I would like to explain plans 2 and 3, and then, very briefly, compare them. Plan 2 is very much like plan 1, except that we would reduce the total power production to 44,000 kilowatts. We would also, under that plan, reduce the irrigation and power benefits I have mentioned, in that we would not have water for new lands; we would be able to furnish supplemental water to all the existing lands. We would also be able to afford about the same degree of flood control. Our power production would be reduced to approximately 259 million kilowatt-hours annually, of which about 175 million would be firm energy. Other features would be the same as plan 1, including removal of the reefs. I think that covers the major divisions in plan 2 as against plan 1. In other words, we have changed from Washoe Lake to Prosser, and, in doing so, have eliminated some of the power and the new lands.

Senator MALONE. You are going to present a map of plan 2, together with a cost estimate you will later arrive at?

Mr. HUNT. Yes.

Senator MALONE. They will be marked as exhibits when received.

Mr. HUNT. As we were working on our investigations, we found that the Truckee-Carson water users' committee had developed a plan of development for the Truckee and Carson Rivers. We have been asked to finish the work started, as they do not have the facilities available. We were quite willing to accept this responsibility, in order to get a fair comparison of our plans. The same cost criteria is used for each plan. The plan of the water users included Prosser Reservoir, as in the Army engineers' report, Stampede at 150,000 acre-feet, which is 25,000 acre-feet larger than the one we had in plans 1 and 2, and a smaller one, of 45,000 acre-feet, at the Watasheamu site. The powerplants consisted of one that does not show on that map, and that is one down at Verdi. This powerplant would

have a high head, and about 19,500 kilowatts of installed capacity. Mr. Devore may find minor changes in this plan. In addition to that, there would be three more powerplants, Prosser, Hirschdale and Floriston, along the river. These plants would have, respectively, 12,500 kilowatts, 1,250 kilowatts, and 3,000 kilowatts. Under this plan we would have 36,250 kilowatts of installed capacity.

Senator MALONE. And how many kilowatt-hours would you have?

Mr. HUNT. By that plan we would be able to develop 145 million kilowatt-hours annually. Now, these kilowatt-hours are slighty different from those of the other plants, in that the average plant factor for plan 3 would be about 46 percent, against the much higher 65 percent for plans 1 and 2. The plan does anticipate the transfer of about 25,000 acre-feet of Truckee River water to the Carson River Valley; it does not include any drainage in the Carson Valley. It does include the reef removal, improvement of the water supply, and will have approximately the same degree of flood control accomplished by the other plan. Incidentally, in all three of these plans we have approximately the same flood-control benefits.

Senator MALONE. You have not yet arrived at cost estimates on any of the plans?

Mr. HUNT. I have preliminary estimates for all three of the plans.

Senator MALONE. Will you state the estimates, for the benefit of the record?

Mr. HUNT. For plan 1 the cost, as Mr. McPhail has previously stated, would be, roughly, $100 million, or $97,500,000. For plan 2 it would be about $71 million, and for plan 3 about $51 million.

Senator MALONE. How would these costs be repaid?

Mr. HUNT. Well, they would be repaid by three major ways, by irrigation, by power, and by flood control. The flood control would not be reimbursable. The power allocation would be paid back in 50 years, at 3 percent interest. The irrigation would be paid back in 40 years, without interest, and would have to be somewhat subsidized by the power.

Senator MALONE. In your plan you pay the cost of purely flood control?

Mr. HUNT. That would be nonreimbursable. In any one dam, the cost of that dam and the facilities around it would be divided between power, irrigation, and flood control, and in that way each is allocated its share of the cost according to its use of the facilities.

Senator MALONE. Do you have any other factors that enter into the repayment?

Mr. HUNT. Well, we have the Fish and Wildlife and National Park Services, by which some costs may be written off under existing laws. We haven't completely evaluated those yet, but, compared to others, they will not be of major nature. I might add that the benefits-cost ratio indicates that all three of these plans are on the credit side. Plan 1 shows approximately 1.8 to 1, plan 2 shows about 1.7 to 1, and plan 3 about 1.6 to 1. So the cost of the power production and the other ratios go up rather uniformly for each plan. The bigger the plan the more benefits, more power, and more irrigation is developed. Now, that covers the three plans I have in mind, generally.

Senator MALONE. On the third plan, you will submit the same exhibits?

Mr. HUNT. Yes.

Senator MALONE. The map and the cost estimate will be retained as exhibits.

Mr. HUNT. We are interested very much, of course, in getting this out. The main reason we have tried to develop these three plans is to give the people an opportunity to evaluate the plans, and give ourselves an opportunity to evaluate them. And I believe we can present that in October sometime, and determine at that time which plan or combination of plans, will best promote the development of this area.

Senator MALONE. These plans, I understand, will be ready for inspection sometime in October?

Mr. HUNT. Yes.

Senator MALONE. About the middle of October?

Mr. HUNT. I can't say exactly. I will have them cleared from my office by then, but we will have to have them reviewed before they can be issued.

Senator MALONE. Are there any questions anyone would like to ask Mr. Hunt?

Mr. WILL M. BLISS. Mr. Hunt, what is the capacity of that tunnel from Lake Tahoe to Washoe Valley?

Mr. HUNT. The capacity would be 500 cubic feet per second.

Mr. BLISS. And that would transfer how many acre-feet per day?

Mr. HUNT. 1,000 acre-feet.

Mr. BLISS. Would it influence the lake level to that extent per day?

Mr. HUNT. It would be a very minor amount per day.

Mr. BLISS. So far as decreasing the lake level is concerned, it wouldn't amount to very much?

Mr. HUNT. No; we would have to operate that over a period of time, the same as the Army engineers would operate theirs. Their tunnel would be the same size as this tunnel we have. But with our larger reservoir capacity we could probably divert more over a period of time.

Mr. BLISS. Now, what is going to happen if you have a very heavy winter like we had this year and you get rains on top of a heavy snowfall, and you do not have the wide margin of capacity in Lake Tahoe that we had this year?

Mr. HUNT. We would start evacuating the lake, say, about now, so we could take it down, and then if the snowfall wasn't heavy we would stop.

Mr. BLISS. Suppose there was a very heavy snowfall and then late rains in the spring and summer?

Mr. HUNT. We would pull the lake down in the fall and during the winter.

Mr. BLISS. Would you do that every year?

Mr. HUNT. Yes; and then when the snow came we could tell when to stop.

Mr. BLISS. What I am talking about is rain in the late spring and early summer. Now, you can't prepare for that, and the lake is normally higher at that time.

Mr. HUNT. The lake would not be higher at that time. We can control normal floods. In fact, we have a flood-control formula, and we figure it so it is taken care of.

Mr. BLISS. Do you contemplate keeping the lake lower in the spring than the present level?

Mr. HUNT. Yes; we do.

Mr. BLISS. About how much?

Mr. HUNT. We would try to pull it down in the winter and keep it down, because we would not have to have storage in it for 2 years, we would have that set aside in another place. And, incidentally, Washoe Lake would have 350,000 acre-feet of capacity, rather than 135,000.

Senator MALONE. Are there any other questions to be asked Mr. Hunt?

Mr. GEORGE DEVORE (engineer of Sierra Pacific Power Co., also chairman of the Water Users' Committee of the Truckee Meadows). May we have a copy of your written statement, Mr. Hunt?

Mr. HUNT. Yes.

Mr. DEVORE. There are a few questions I would like to ask.

Mr. Hunt, in your plan 3 you did not mention about irrigation in Carson Valley from the Watasheamu Reservoir. Was that included in the plan?

Mr. HUNT. Yes. I am sorry. Under plan 3 there would be 25,000 acre-feet of water for supplemental use, annually.

Mr. DEVORE. Each and every year?

Mr. HUNT. No; not in very bad years.

Mr. DEVORE. Was that based on a prime right to storage in the reservoir, or on existing rights under the decree?

Mr. HUNT. On prime water supply. I might add that the water users' committee furnished us with a copy of the water supply partially worked out, and we merely continued that.

Mr. DEVORE. In determining the benefits, what value did you place on the irrigation water? I would like to have the value per acre-foot, if you have it.

Mr. HUNT. Mr. Maughan is more familiar with that.

Mr. MAUGHAN. We figured that would have to pay 90 cents per acre-foot for that water. That is all they could afford. Now, regarding the irrigation benefits, they are somewhere around eight times that much. I am sorry we do not have the figures with us, but we can get them for you.

Mr. DEVORE. That is fine. On the power, I presume you used the same benefit value in each plan for power, under the same conditions?

Mr. HUNT. They would have to be figured differently, but the same criteria would be used, both as to cost and production.

Mr. DEVORE. Does your statement show the value in kilowatts?

Mr. HUNT. No; but our further statement will show that.

Mr. DEVORE. At this time have you the benefit figures for power under plan 3?

Mr. HUNT. No; we haven't.

Mr. DEVORE. Another figure you did not mention in plan 3—and you will note I am asking questions mostly on plan 3, because it practically parallels the water users' plan—is the amount of water made available to the Washoe County Water Conservation District in excess of the present supply.

Mr. HUNT. I am sorry; I can't answer as to that.

Senator MALONE. You will please make that data available to Mr. Devore.

Mr. DEVORE. In the committee's plan they had intended to add in there drainage in the lower Truckee Meadows. I think that is included in both of your other plans.

Mr. HUNT. That is correct.

Mr. DEVORE. That should have been added to plan No. 3.

Mr. HUNT. We would be willing to add that in our report. Some months ago I asked the water users to furnish me with what they wanted in that plan; I had it approximately from newspaper and other reports, but did not have a statement from them. We will be glad to make that correction.

Mr. DEVORE. What would be the length of time required for the construction of each project, in years?

Mr. HUNT. There are several criteria to be considered in that. One is the amount of money available each year. Offhand, on plans 1 and 2—there would be no material difference in the time on them—I would say between 5 and 10 years. Plan 3 would require less time, because of the lesser number of features, but not less than 3 or 4 years.

Senator MALONE. We will now be in recess until 7:30 p. m.

AFTER RECESS

Senator MALONE. The meeting will come to order. We will now hear from the California Division of Fish and Game, as they wish to return to California. You will please identify yourself, for the record, Mr. Pollitt.

Mr. ALLAN F. POLLITT. My name is Allen F. Pollitt. I am the assistant supervisor of fish hatcheries for the department of fish and game. We have a written statement which we would like to get in the record. This statement, however, was prepared on the basis of covering mainly the Truckee River. In principle, we would like to have, as a matter of record, this statement apply to all of the projects, which include the Truckee River, the Carson River and the Walker River.

STATEMENT OF ALLEN F. POLLITT, ASSISTANT SUPERVISOR OF FISH HATCHERIES, CALIFORNIA FISH AND GAME DEPARTMENT

In order to protect, maintain, and improve the valuable fishery, wildlife, and recreational resources of the Truckee River drainage it is imperative that the sponsors of proposed flood control, impoundment, diversion, and hydroelectric projects recognize that such projects can seriously jeopardize the continuance of these resources. The destruction of these resources in part or in their entirety is of vital concern to not only the citizenry within the drainage, but also to the people of the entire State of California.

It is impossible to make detailed recommendations for the protection and maintenance of the wildlife and fisheries resources at this time, because of the preliminary status of water-control and utilization plans for the basin. However, it is clear, even at this time, that the general plan would seriously impair existing fishery habitats within the basin, unless steps are taken to prevent such impairment during the planning stages of the basin's development.

Among the steps which will be necessary during the planning stages will be the establishment of adequate minimum flows in the Truckee River from Lake Tahoe to the State-line and in any other streams involved in the project. To reduce losses, it may be necessary to screen diversions, and where diversion dams impede the natural migrations of fish, suitable fishways would have to be provided. Provisions should be made for the discharge of water from reservoirs at levels which will insure satisfactory water temperatures for the desired type of downstream fish populations, and releases of water from the impoundments should be made on gradual schedules, to prevent sudden changes in stream flows.

In conclusion, it is recommended that the sponsors of any water-development program in the Truckee Basin be requested to consult with the California Department of Fish and Game during the planning stages, so that measures and recommendations for the protection of the fishery, wildlife, and recreational resources can be adequately formulated.

Senator MALONE. Do you have any further statement to make at this time, Mr. Pollitt?

Mr. POLLITT. I don't have anything further. However, I would like at this time to give Mr. Fraser an opportunity to make any statement he so desires.

Senate MALONE. I might ask you, prior to his statement, what are the benefits from fish resources of the Truckee, Carson, and Walker Rivers? I mean, what do they mean to the State in dollars and cents. In your own words, can you put a figure of how much monetary value you get out of that recreation? You do have certain monetary returns through licenses, etc.

Mr. POLLITT. The monetary values of fish are so far-reaching that it would be impossible to put a figure on it, because you could tie in a good many things to that end, and so far as a dollars-and-cents evaluation is concerned, it would be pretty difficult to do.

Senator MALONE. I just asked you because you have had experience. Naturally, it would be the licenses and the purchases that the fishery men make in their recreation that has a monetary value.

Mr. POLLITT. The licenses do have a definite value to us. So far as the immediate value to the community is concerned, of fishing, and all types of harvest of wildlife and recreation, it rests within the individual as to what he figures it is worth to him.

Senator MALONE. Thank you, Mr. Pollitt. We will call Mr. Fraser. Mr. Fraser, what do you consider an adequate flow from Lake Tahoe for the fish life?

Mr. J. C. FRASER (district fisheries biologist, Department of Fish and Game of the State of California). Until such time as we know the program, I would hesitate to state just exactly what the adequate flow should be. We have more or less a preliminary basis set, and figure that could possibly be a minimum flow. However, since the information coming to us regarding this project is so meager, we are not in a position to say that that would be adequate.

Senator MALONE. In your statement you say you would like an adequate flow from Lake Tahoe. What would you consider is adequate?

Mr. FRASER. In portions right below Tahoe it is not adequate. Frankly, good fishing is there at times, but the stream has drained to a leakage of 8 second-feet.

Senator MALONE. You also state that you would like the flow regulated for temperature. How would you do that? What waters are you referring to?

Mr. FRASER. On the Truckee, from Tahoe down. The release from the Frosser Dam should be at a level that would give us the adequate temperatures in spilling the warm water into the stream, also holding the stream to a minimum flow. These waters would be warmed up as they progressed down the stream, which would render portions of the stream unsuitable for trout.

Senator MALONE. Do you think, then, that the regulation of that river is more important to the fish than it is to the farmer and the stockman? Let me put it this way: I have watched the regulations for some time. At present there is 400 feet coming down below Boca Reservoir. You are taking your readings at Mystic; is that correct?

Mr. FRASER. No; we are taking them at Boca. There is better than 500 feet coming past there, about 520. What I am trying to bring out is that instead of drawing a complete 400 feet from Boca, if you could reduce your drawoff there to, say 350 feet, and bring the additional 50 feet down from Tahoe, then you would not only be preserving fish life, you would also be preserving that amount for the farmer, and the only difference is a few days. My division is trying to get water resources this year. This is a very unusual year, but if we keep the reservoir going to the end of October, I will have enough water flowing out of there in order to keep my permit.

Senator MALONE. At the cost of the upper reaches of the Truckee River. The natural spawning area that serves the river, to a great degree, is in the upper reaches. That is the reason I asked you what you would consider an adequate flow.

Mr. FRASER. A great deal more than there is at the present time.

Senator MALONE. Say 100 percent more?

Mr. FRASER. I would not like to give a figure until such time as further study is made. I would appreciate that additional water, that's for sure.

Senator MALONE. Could you submit a supplemental statement that might give us a minimum estimate of the amount necessary to be maintained in the stream?

Mr. FRASER. I believe that could be prepared.

Senator MALONE. The reason we would like to get as much expert testimony in the record as possible is that I do know that the water users would like to cooperate as much as they can, and if they know your requirements they will make every attempt to meet them. If you will study and submit any information you can, it would be valuable, at least. Any information you can furnish us would be helpful. Does anyone wish to ask Mr. Fraser any further questions?

Mr. FRED DRESSLER (of Carson Valley Water Users' Association). Natural spawning grounds were mentioned. What percentage of natural spawning do you depend on for fish rehabilitation, as against planting?

Mr. FRASER. My job is promoting fish hatcheries and providing fish for artificial stocking of streams. It is very evident to me that natural reproduction is more important than artificial production.

Mr. DRESSLER. I understand that a great many of the fish are planted. I have understood that you can rehabilitate on an artificial basis 99 percent or over 100 percent of spawning, by planting them. My contention there is that you are asking a certain thing to be done in regard to releasing water, and I think you are asking for too much value in water to be released for a very minor consideration, as far as fish life is concerned.

Mr. FRASER. May I qualify my statements by stating that we are not asking for release of water that would jeopardize your project. But I believe the fisheries potential is very valuable, and that consideration should be given to it as a very valuable aspect. The drawdown of the water that I mentioned, when under present regulations, should not effect the amount of water that is delivered to the ultimate user.

Mr. DRESSLER. I am not trying to criticize your idea. I think it is necessary to have fishing, but, after all, we must take these things in

the order of their importance. We are spending thousands of dollars to rehabilitate these streams. We haven't got water to throw away.

Mr. FRASER. With your permission, Senator, I would like to more fully answer this gentleman's question. In order to give you an idea of the importance of natural reproduction to the total catch of fish in the State of California, I cite a survey which was made in 1946 or 1947, on a Statewide basis, through postcard surveys and a field census, combined, which showed that approximately 18 million trout were caught in California, and the group opinion of all of the experts that we could draw upon indicated that at least 80 percent of that total catch was produced naturally, and not produced in any hatchery production. Influence from hatchery trout is not very great. I can prove that in part by stating that approximately 50 percent of the catch from the checking station down to the State line is brown trout, and we have not planted any brown trout for some 10 years. All of the brown trout that were produced in the catch come from natural reproduction. To say that it is not a very important thing in the river would be leaving the picture somewhat unqualified.

Senator MALONE. Will you now proceed with your own statement?

Mr. FRASER. I have very little to say, except that opposition here is primarily to the importance of considering the trout population and the recreational value concerned. All too often these projects go along to the point of almost conclusion with little consideration for protective measures for proper protection of wildlife resources value, and when they do come to the point of near conclusion it is difficult to adequately protect these resources involved, and we ask to be given opportunity to discuss their plans and how we can work any protection of wildlife resources. We are not in a position at the present time to give specific figures on flow, releases, and placement of fish drains, and like measures, because we are not thoroughly familiar with the detailed plans of the responsible services. For instance, the Bureau of Reclamation pointed out three different plans. For us to go into each of these plans would involve considerable work, and we have not yet had the opportunity to sit down at a table and discuss the various problems involved. I would like to say one more thing, and that is that any recommendations that have been made by the California Fish and Game Department should not be considered binding in any way at the present time, for two reasons: first, we haven't had ample opportunity to study these plans, and, secondly, any recommendations we make may not properly take care of the interests of the Nevada people. In other words, any release which we might feel to be satisfactory in California might not necessarily take care of the Nevada interests, and definitely, I feel that they should have a hand in the arbitration and discussion.

Senator MALONE. I think, Mr. Fraser, that there has never been any disposition on the part of water users to destroy the fisheries. Naturally, they may be thoughtless. However, after long experience on the streams in Nevada, I have always found that if it is drawn to their attention they will provide any facilities that it is possible for the protection of the fish life, and I feel, too, that in the case of your Department and the Nevada Fish and Game Commission there will be no question about that. Now, Mr. Fraser, in the event that your Department were supplied with a definite report by either the Army engineers or the Bureau of Reclamation, as to the plans they have in

mind, specifically referring to the flow of water and the location of these different dams, at that time, in connection with the Nevada Fish and Game Commission, do you think you would be able to formulate conclusions and recommendations as to the effect on fish life?

Mr. FRASER. Yes, I believe we can adequately take care of that. To do that properly, we should get together and work it out with the sponsors of the plans, during the planning stages. In other words, let's get the views of the California and Nevada Departments in before the plans get too far advanced. Does that answer your question?

Senator MALONE. Yes. All of the information will be available to you, and you will know the rate of progress.

Mr. F. R. BREEN. Mr. Fraser, I understand that, especially since the war, there has been a tremendous increase in the sale of licenses in the State of California. Is it possible to supply us with figures showing that increase?

Mr. FRASER. I would prefer not to supply them verbally, because I might enter into error. I would like to have the opportunity to supply those in writing. May I, Senator?

Senator MALONE. Yes. If there is nothing more to be asked Mr. Fraser, is the Truckee-Carson Water Users' Committee ready to proceed?

Mr. FRED SETTELMEYER. My statement will be very brief. I merely want to say that the work that our committee has done was guided by what effect any project will have on the man who carries the shovel and pays the bills, whose ground is still there when the "captain and the kings depart." We feel that we don't want anything to happen that will impair the value of the land, either for ourselves or those who will succeed us. We want to be very sure that this water is not spread too thin. We would rather have a little excess in 4 years out of 25 than to be short 24 out of 25. The committee has worked long, and if anyone thinks that this water deal isn't intricate and complex, you should have sat in with us for a while. The particular information will be given by Mr. Devore, chairman of our committee. I would like to give you, for the record, the names of the men who have worked on the committee.

Senator MALONE. You may give the names.

Mr. SETTELMEYER. The representatives from the Truckee-Carson irrigation district are John Thornton, George Miller, John Hannafin, John Konda, Harry Richards, Phil Hiibel, manager, and Marvin Weishaupt; the Washoe area, Washoe County conservation district, was represented by Ernest Kleppe, Ed Peckham, Carl Stoddard, C. C. Taylor, John Robinson, Jim Peckham, and E. Capurro; the Carson Valley area was represented by John Dangberg, Clarence Henningsen, Brooks Park, Ed Godecke, Graham Sanford, Fred Dressler, Fred Settlemeyer; and the overall chairman has been George Devore.

Senator MALONE. Mr. Devore, don't you want to continue your questioning of Mr. Hunt, of the Bureau of Reclamation?

Mr. GEORGE DEVORE. I have only one or two questions.

Senator MALONE. Mr. Hunt, would you take the witness chair again?

Mr. DEVORE. I think Fred Settelmeyer should have made the statement that the report to be made will be a report on work in which all parties joined.

Senator MALONE. Can you make your report tomorrow?

Mr. DEVORE. Yes.

Senator MALONE. You may complete your questioning now, if you will.

Mr. DEVORE. Mr. Hunt, I have a question on your plans 1, 2, and 3. Had you storage in Hope Valley?

Mr. HUNT. In plans 1 and 2, that is correct.

Mr. DEVORE. Could you tell us how the water-right storage was provided for the years 1929 to 1935, inclusive, for storage in Hope Valley?

Mr. HUNT. We operated Hope Valley Reservoir to provide a continuous outflow. The outflow from Hope Valley would be supplemented by releases from the East Fork storage at Watasheamu, to provide for the full irrigation demands for the water rights in the Carson Valley and down the river. All rights would be completely satisfied.

Mr. DEVORE. But how does your study show the right to store water when Lahontan is short of its requirements? The Water Users' Committee's study during the years 1924 to 1935, inclusive, showed there was a shortage each year in the area under Lahontan, with the exception of the years 1925, 1927, 1928, and 1932, and these shortages were material, for the Lahontan area. So we do not see what right you had to store adversely upstream to Lahontan, and short their supply of water that they are entitled to.

Mr. HUNT. We did not store adversely to Lahontan in any of our studies, to the effect that you may believe. We have invited you to inspect our study, but you have not. We do not short the existing projects any more than they would be under normal conditions.

Mr. DEVORE. We did not look at your water study. We presumed you had considerable storage at Hope Valley.

Mr. HUNT. In the dry years Hope Valley would be almost empty. The releases would come from hold over storage and minor regulation of spring flows.

Mr. DEVORE. Where do you get the water?

Mr. HUNT. We are not adverse to Lahontan. The water comes from the integrated operation of all reservoirs.

Mr. DEVORE. Do I understand you, then, what you mean is that you stored water in Hope Valley that belongs to Lahontan, and ran it out in the summer months?

Mr. HUNT. Replaced by storage from Washoe Lake, as far as Plan 1 is concerned.

Mr. DEVORE. What comes from developmental storage in the prosser Reservoir?

Mr. HUNT. There is more storage in Prosser in plan 2 thar in plan 1.

Mr. DEVORE. I understand that an annual average supply for Verdi diversion in excess to the Prosser supply amounts to about 25,000 acre-feet under plan 2.

Mr. HUNT. That was under plan 3. In plan 2, it was about 40,000 acre-feet. We have considerably more storage in plan 2 than you have in plan 3.

Mr. DEVORE. Just a minute. In your plan 2 would you have a full reservoir at Prosser?

Mr. HUNT. Plan 2 has a bigger reservoir at Prosser.

Mr. DEVORE. Then you would have the same storage capacity as provided in the Truckee-Carson Water Users' Committee's plan?

Mr. HUNT. We do on the Truckee, but we have more on the Carson, and we provide drainage for lands, in two places, with resultant water salvage.

Mr. DEVORE. What the Water Users' Committee is concerned about is how you could get that extra water in Hope Valley and still supply the Lahontan area rights.

Mr. HUNT. Again I will explain that we have four reservoirs in plan 2 and through the exchange of water we are able to operate the Hope Valley Reservoir during all years. However, the Hope Valley power plants will not produce as much power in dry years, and that is the reason we have secondary energy. The figures we have given to the committee reflect the dry years. The basic criteria in our project operation studies is that we do not short Lahontan, or the Fallon area, any more than they would have been short under existing conditions. There are over 100 columns in our water supply studies, and they cover a long period of years. They stretch out quite a ways, and we don't have them with us. I don't believe that without them we could convince you just how we arrived at the data we have given.

Mr. DEVORE. We want to bring out in this hearing the fact that during the period of years from 1919 to 1948, inclusive, under the Water Users' Committee's study, there was a shortage under Lahontan Reservoir of 1,009,000 acre-feet. This shortage occurred during 7 years out of the 30 referred to. What we can't see is how you could store in Hope Valley, and at the same time run your power plant and take care of Carson Valley and the Lahontan area. Do you have the figures on the Derby flow?

Mr. HUNT. No. We would have to go back in the water supply to check the exact amount. But I would like to state for the record, once again, that in our studies we did not short Lahontan. Our studies have shown that water can be regulated in new Truckee River storage facilities at Stampede and Prosser, and delivered to the Fallon area, in exchange for storing water in new reservoirs upstream on the Carson River.

Mr. DEVORE. How about these 8 years out of 12 years, 1924–35, when the water was short under Lahontan, and the only water that you stored was water that you took from Lahontan?

Mr. HUNT. I think I have answered your question, in a general way. If more detail is required, we extend our invitation to you, once again, to visit our office in Carson City, where we can go over our water-supply studies.

Senator MALONE. It is becoming increasingly evident that a considerable about of testimony must be submitted to the committee following the hearing. It may be that we will recess the hearing and leave it open for exhibits, and in this case you could agree, or if you do not, you can have footnotes on your disagreements. I know that if you start with the same assumption, you are bound to come out with the same answer.

Mr. DEVORE. I don't want the committee to feel that I am questioning the accuracy of the engineers working on these plans.

Senator MALONE. I think it would be well to have a conference, at least, for the purpose of the hearing. I think, at this point, that it is

pertinent to bring to the committee's attention, in regard to this water spill at the Derby Dam location, that it has been 2,400,000 in 30 years, an average spill of 80,000 acre-feet. Mr. Devore, I would suggest that all of this material based upon assumption be discussed between the two of you, and a statement submitted for the record later. We will recess the hearing, not adjourn it.

Mr. DEVORE. In 1919, 1920, and 1921 there was no spill at Derby; all waters were impounded, except seepage. In 1922 there were 165,000 acre-feet; in 1923, 54,000 acre-feet was spilled. In 1924, 1925, 1926, and 1927 there was no spill at Derby. In the year 1928 there was 58,000 acre-feet spilled at Derby. In the years 1929, 1930, 1931, 1932, 1934, 1935, 1936, and 1937 there was no spill. In 1938 there was 316,000 acre-feet. In 1939 there was no spill. In 1940, 91,000 acre-feet. In 1941, 44,000. There was no spill in 1944 and 1945. In 1946 there was 26,000 spilled. In the years 1947 and 1948 there was no spill. A tabulation was not taken in the last 2 years. At Lahontan, there was spilled in 1919, 1920, and 1923, 54,000 acre-feet. There was no spill in 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, or 1937, but in 1938, after an intermission of 16 years, there was a spill of 272,000 acre-feet. There was no spill in 1939, 1940, or 1941. But in 1942 there was a spill of 38,000, and in 1943, 63,000 acre-feet. There was no spill in 1944 or 1945. There was a spill in 1946, but no spill in 1947 or 1948. These figures are taken from studies of the water users' committee. There are a number of other points that the water users' committee would like to check with the Bureau of Reclamation, Mr. Hunt's Corps. But we feel that it would be taking up the time of this committee without getting sufficient return and benefits, and if we are allowed to submit a statement at a later date, we will forego any further examination at this time.

Senator MALONE. It will be understood that a statement may be submitted later. Also, that the hearing will be resumed tomorrow afternoon, and when we complete the testimony of the current set of witnesses, we will be recessed, instead of adjourned, subject to the call of the Public Works Committee. It that satisfactory?

Mr. DEVORE. Yes.

Senator MALONE. It is understood that any statement made by any witness may be corrected, deleted, or added to, for the sake of clarity.

Mr. F. R. BREEN (representing Nevada State Fish and Game Commission, and others). Mr. Hunt, under plans 2 and 3, who would control those power plants if they were constructed?

Mr. HUNT. I believe the Bureau of Reclamation—the Federal Government would operate them.

Mr. BREEN. Under the plans, who would control the release of water from Tahoe and the reservoirs?

Mr. HUNT. That would have to be worked out at a later date between some contracting entity and the United States. This entity would have to include representatives from all of the water users now in the area, or any new group of water users that may be formed as a result of the Washoe project development, such as a conservancy district. At the present time Nevada does not have a conservancy district law.

Mr. BREEN. At the present time is it correct to say that you have no provision made for the regulation of water from these various reservoirs.

Mr. HUNT. No, that is not correct. These reservoirs have to operate in accordance with the existing decrees, or acceptable modifications thereof.

Mr. BREEN. Understand that my question is this: Under the plans, what is the provision for the regulation of the water, releasing of this water from Lake Tahoe and the reservoirs? Who is to regulate it?

Mr. HUNT. Again I state that the details are not worked out. As soon as a definite plan of development is selected, more time will be spent on this phase of the investigations.

Mr. BREEN. Then, at the present time, you do not have a provision in there for the release of this water?

Mr. HUNT. That is correct, in one sense.

Mr. BREEN. I have several additional questions. In connection with the flood-control aspects of these various plans, Mr. Hunt, what would be the effect on a flood such as we had in 1950, if this plan had been in effect?

Mr. HUNT. If any one of these plans had been in effect, the flood of 1950 would have been controlled.

Mr. BREEN. Can you tell us how it would be controlled?

Mr. HUNT. I believe that during the 1950 flood the Prosser Creek flow was approximately 4,000 second-feet, and the flow at Reno was 20,000 second-feet, and the flow of the Little Truckee about 5,000 second-feet. If the flows of Prosser Creek and the Little Truckee River had been stopped by potential reservoirs, the resultant flow through Reno would have been approximately 11,000 second-feet, which is less than the zero damage channel capacity through Reno.

Mr. BREEN. It is true that the major flood control as provided in this program comes from Prosser, and the diversion controls that take off would have very little effect?

Mr. HUNT. In plans 2 and 3, Prosser is the feature which makes it possible to transfer the top 1.1 feet of Lake Tahoe storage, and reduce flood damages at the lake; it is also a very important feature in reducing floods through Reno.

Mr. BREEN. The channel work would have very slight effect on flood control as the basis of this program, the flood from the watershed, disregarding Lake Tahoe. If you include Tahoe in the estimate, you must have some way of getting that water out of Tahoe into another space. Isn't it true that the primary purpose of that channel work is not flood control from Tahoe?

Mr. HUNT. I think the Army will agree with me that the primary purpose was for flood control around Tahoe.

Mr. BREEN. You cannot control storage under your plan. I ask, isn't the Prosser Reservoir merely a substitute for the reduced water at Tahoe?

Mr. HUNT. Under plan 2, that is correct. The Army believes that there would be sufficient storage normally at that time of the year to have controlled the Prosser Creek flood.

Mr. BREEN. Under plan 1 you have very little storage in Prosser Reservoir. Under plan 2, it would be merely a substitute.

Mr. HUNT. Basically, yes.

Mr. BREEN. Have you considered, in the program, evaporation from the reservoirs?

Mr. HUNT. We have.

Mr. BREEN. What are your conclusions?

Mr. HUNT. The water lost through evaporation is significant.

Mr. BREEN. In other words, by completing these two additional reservoirs, you actually are increasing the amount of evaporation?

Mr. HUNT. Which two?

Mr. BREEN. Stampede and Prosser.

Mr. HUNT. Any reservoir will increase the evaporation.

Mr. BREEN. If these reservoirs were completely full, they would run between five and six thousand acre-feet a year. What would be the effect, Mr. Hunt, on the ability of whatever regulatory body was set up to control the release of water from Tahoe, if the lower level were put into effect? Let me put it this way: wouldn't it be more difficult to control the water at Tahoe if the lower level were put into effect?

Mr. HUNT. No. I think that, particularly under plan 1, Lake Tahoe would be easier to operate. With the tunnel, it would not be necessary to keep the lake at the maximum allowable level in order to provide water for irrigation, because water released from Lake Tahoe would be stored in a potential reservoir, and be available for use at any time.

Mr. BREEN. Are you referring to other storage?

Mr. HUNT. Yes.

Mr. BREEN. What storage?

Mr. HUNT. My reference is to Washoe Lake, and also Prosser.

Mr. BREEN. As to that particular part of your plan, won't it be more difficult than under the present system?

Mr. HUNT. It would be a little more difficult, under plan 2, yes.

Senator MALONE. Would you mind continuing your questioning tomorrow, Mr. Breen, so that we can now take the testimony of the Truckee-Carson Water Users Committee?

Mr. BREEN. No, Senator.

Senator MALONE. All right, Mr. Devore.

STATEMENT OF GEORGE G. DEVORE, CHAIRMAN, TRUCKEE-CARSON WATER USERS COMMITTEE

Mr. DEVORE. My name is George G. Devore. I am a water resources engineer, and for more than 25 years past have been familiar with and made water studies on the Truckee River and Lake Tahoe.

Pursuant to notice of public hearing, dated August 13, 1952, signed by Senator Dennis Chavez, chairman of the Committee on Public Works, and in compliance with an invitation of Hon. George W. Malone, addressed to me under date of August 15, 1952, I am appearing before this committee in my capacity as chairman of the Truckee-Carson Water Users Committee. Due to the short interval of time since receiving the notice of this hearing, it has been impossible to prepare a written statement and have it approved by the committee which I represent; therefore, I respectfully request that the written statement that will be presented to your committee at an early date be inserted in the official records of this hearing. I will be pleased, at this time, to review the major points that will be contained in the

written statement, and I respectfully request that a written statement be inserted in the records.

Senator MALONE. It will be accepted as part of the record.

Mr. DEVORE. This committee which I represent consists of 21 representatives of the water users of the Carson Valley, Truckee-Carson Irrigation District, Washoe County Water Conservation District, and Sierra Pacific Power Co.

This committee was created in February 1950 for the purpose of improving the water conditions on the Truckee and Carson Rivers, so as to eliminate, as far as feasible, the deficiency in the present water supply, and to create such other benefits to the users as can be secured by the joint efforts of this committee. It has been agreed that in order to secure benefits for all the users of this committee, certain rights of all the users will have to be pooled in order to secure the desired benefits along the general procedure that was followed in the Truckee River agreement. For the benefit of the committee, I will submit at this time a copy of the Truckee River agreement.

Senator MALONE. It will be accepted as an exhibit under the testimony of the chairman of the Truckee-Carson Water Users Committee, and become a part of the committee files.

Mr. DEVORE. Without referring to the early historical events which led to the creation of the water rights on both the Truckee and Carson Rivers, attention is called to the condemnation suit of the United States versus Truckee River General Electric Co., in 1915, in which suit the Government acquired certain control and certain rights in Lake Tahoe for the benefit of the Newlands reclamation project, subject to certain uses decreed to the Truckee River General Electric Co., which, among other things, included the power rights of the waters of Tahoe when released, as provided in the decree. Attention is also called to the adjudication suit on the Truckee River which determined the relative rights to the users of that stream. This suit was supplemented with the Truckee River agreement, wherein many of the water rights were pooled, including Tahoe waters, except for power, and which, together with the construction of Boca Reservoir and pondage, has become a major and important step in improving the water supply of the Truckee River, although the benefits secured thereunder were not sufficient to eliminate all the shortages that existed during dry cycles.

A suit is now pending on the Carson River to adjudicate the water rights on that stream, and, without some supplemental development and agreement between the users on that stream, it is apparent that serious deficiencies will be faced after the decree is made final on that stream. The committee has been active in promoting a stipulation in this suit, and conditions appear favorable at this time. For the benefit of the committee, I present, for its information, a tentative finding of the master in the Carson River suit.

Senator MALONE. It will be accepted and filed. This is the Carson River decree?

Mr. DEVORE. That is correct. It is the one that the committee has been trying to stipulate on, so that the findings will be agreeable to all. In order to have the record more complete, I will also present at this time, for the committee's information, a copy of the Truckee River decree, which decree is supplemented by the Truckee River agreement and the 1915 decree.

Senator MALONE. This court decree on the Truckee River is accepted.

Mr. DEVORE. I will state that this decree does not include the Truckee River agreement or the 1915 decree, but in the court's findings it made that agreement and decree a part of it.

The United States Army Engineers have made certain studies on Lake Tahoe, the Truckee River, and also on the Carson River. The report on the Truckee River covers flood control, irrigation, and power benefits, while the report on the Carson River includes flood control and irrigation benefits. The report on the Truckee River has been submitted to the local interests, but the Carson report has not as yet been submitted.

The United States Bureau of Reclamation has also made studies on both the Truckee and Carson Rivers, covering benefits for flood control, irrigation, and power purposes. At this date these reports have not been submitted to the interested parties.

WATER DEFICIENCY

From past experience and water studies that have been compiled, it is apparent that a serious water shortage will occur on the Truckee River whenever a dry cycle is experienced that extends over a period longer than 2 years, depending upon the degree of shortage in these years. The only apparent cure for this condition on the Truckee River appears to be for the creation of more storage where reserve storage can be created in normal or better than normal years of runoff to supplement the years of subnormal runoff.

On the Carson River a water shortage is experienced in the Carson Valley area during the latter part of each year, with the exception of such years as 1938 and 1952, when the runoff was far above normal.

The Fallon area on the Carson River has a better water supply than the Carson Valley area, due to its Lahontan Reservoir, which as a good carryover storage under normal conditions, but with 2 years of severe shortage on both the Carson and Truckee Rivers, it also would be faced with a serious shortage at the end of the dry cycle.

HIGH WATER DAMAGES AT LAKE TAHOE, AND OTHER BENEFITS

Lake Tahoe is faced with a condition, according to the Army engineers' report, where extensive damage results from high water in the lake area under certain water conditions. This report also indicates that it is of great importance to this area, and large benefits will result, if the high-water level of the lake is reduced 1.1 feet, as proposed by the Army engineers.

The Army engineers' report also indicates that material benefits will result to fish, wildlife, and recreation in this area if their proposed development is made.

COMMENTS ON ARMY ENGINEERS' REPORT

We note that there are certain misstatements in the report which were undoubtedly made inadvertently. In addition to these corrections, it appears that there are certain proposals that we believe should be clarified, which we will attempt to point out herein.

Paragraph 24, page 15: In the tabulation it lists Farad power plant with a hydraulic capacity of 475. Metered flows indicate that this capacity is at least 525 cubic feet per second.

Paragraph 24, page 16: The report states that Donner and Independence Reservoirs are operated primarily for power. These reservoirs are privately owned storage, and are operated for domestic and irrigation purposes, as well as power.

Paragraph 27, page 17: The Truckee River agreement does not provide a specific method of operation for Independence Reservoir, as it is termed privately owned water in the Truckee River agreement.

Paragraph 27, page 18: There is no water administrator in California. The three major parties regulate by agreement, under the terms of the Truckee River agreement and the 1915 decree, the drafts from the different reservoirs in California. The 1915 decree is not modified.

Donner Lake is under the control of the Truckee-Carson irrigation district and the Sierra Pacific Power Co., and not the Sierra Pacific Power Co. alone. Water is released from this reservoir by agreement between the two parties mentioned above, for power, irrigation, and domestic purposes.

Paragraph 43, page 27: The report proposes to erect a weir on the upper side of the dam at the Lake Tahoe outlet, at an elevation of 6,223.3. In view of the fact that the elevation of the rim of Lake Tahoe at the outlet is 6,223.0, we do not know why this extra three-tenths of a foot is added to the artificial rim.

The weir proposed herein is most valuable in increasing the discharge from the lake when necessary to prevent high water. However, if the Lake Tahoe interests object, and the engineers do not install the weir and excavate the channel, then when the high-water level exceeds 6,228.0, provision should be made for the withdrawal of the excess elevation. The discharge capacity under present conditions at elevation 6,229.1 is about 2,100 cubic feet per second, and at elevation 6,228.0 about 1,500 cubic feet per second. With the weir and channel excavation, the discharge at elevation 6,228.0 is calculated by the engineers at about 2,400 cubic feet per second.

Paragraph 49, page 32: The report states that the Lake Tahoe operation would be to prevent the lake level from exceeding 6,228.00. It is impossible to prevent the lake level from exceeding any definite elevation by a slight amount, without sacrificing storage in the reservoir, and provision should be made that discharges from the lake would be made to prevent the lake level exceeding 6,228.0 insofar as possible; that if it should exceed the stated elevation, then the excess would be withdrawn from the lake whenever the flow in the river at Reno was less than 12,000 cubic feet per second, or the flow in the river between Lake Tahoe and Truckee was less than 1,500 cubic feet per second, or such amount as would not create damage.

Paragraphs 49, 50, 51, pages 32, 33, and 34: We suggest that in lieu of the proposed regulation of Lake Tahoe as provided in the report, Lake Tahoe be operated in order not to create high water conditions under the regulations now existing for such operation, in the Truckee River agreement under paragraph F, article III, page 6, and that this paragraph be modified by reducing the elevations therein as follows:

Elevation 6,229.1 reduced to 6,228.0.

Elevation 6,230 reduced to 6,229.

Elevation 6,228 reduced to 6,227.

The said paragraph F to be subject to the condition that discharges from the lake will be made to prevent the lake level from exceeding elevation 6,228.0, insofar as practicable, provided, however, that if the water surface elevation should exceed said elevation 6,228, then the excess water above said elevation would be withdrawn from the lake whenever the flow in the river at Reno was less than 12,000 cubic feet per second, and/or when the flow in the river between Lake Tahoe and Truckee was less than 1,500 cubic feet per second, or such amount as would not create material damage between Lake Tahoe and Truckee.

The operation of Donner and Independence Reservoirs will not necessarily be coordinated with the operation of Tahoe, Boca, and Prosser Reservoirs in order to provide specified flows at Iceland, as these two reservoirs are privately owned stored water under the terms of the Truckee River agreement. Boca, Tahoe, and Prosser Reservoirs should be operated in accordance with the Truckee River agreement.

Release of 50 cubic feet per second from Tahoe would not be made for fish unless such release was used to maintain Floriston rates, as provided in the 1915 decree.

The 1915 decree provides that no releases should be made from Tahoe when the natural flow at Iceland equals or exceeds Floriston rates, hence the release of fish water under such condition would be contrary to the 1915 decree, and a waste of water as far as the water users are concerned.

Paragraph 50, page 33: The water users could not agree to operate Lake Tahoe with a minimum elevation of 6,226.0, July 1 to September 30, unless such operation is in accord with the 1915 Federal decree.

The 175,000 acre-feet reserve storage capacity for floods between December 1 and March 31—1.42 feet—would be an excessive amount in case that the following year developed to be a year of small runoff, and could create a water shortage, especially if an artificial rim is not constructed. This should be given further consideration.

Releases of 2,400 cubic feet per second from Lake Tahoe would undoubtedly create damage along the river between Lake Tahoe and Truckee, and unless this reach is protected from such damage we do not believe such maximum discharge should be made. A discharge of 1,000 to 1,200 cubic feet per second, plus the inflow along the stream, appears to be the maximum discharge that can be made at this time without creating damage. The maximum discharge at elevation 6,228.0 is about 1,600 cubic feet per second, without a weir.

Paragraph 51, page 34: Full releases from Prosser Reservoir, based on February 1 snow surveys, might prevent the reservoir from filling. We believe that a February 1 snow survey should be used only as an indicator, and not necessarily as the deciding factor, in determining when and how much water should be released. We believe that the rules set up for providing a maximum capacity of 100,000 acre-feet for flood control of Prosser Reservoir on February 1 might result in the reservoir not filling, if the precipitation during the balance of the season after February 1 was subnormal. If Prosser water is to be legally a part of Lake Tahoe water, as indicated in the report, then releases from Prosser should be made in accordance with the 1915 decree and along the lines of the proposed releases from Lake Tahoe, as heretofore referred to.

Paragraph 52, page 35: Storage space of 20,000 acre-feet in Boca Reservoir for flood-control purposes, on December 1, is a reasonable requirement, and it would be a reasonable requirement to extend this period to April 1, provided that in the latter part of this period the snow surveys indicated that there was enough water supply in the snow to legally fill Boca Reservoir. However, in dry years when the February 1 and March 1 snow surveys indicated that there was not enough water available that could be stored in Boca, in the watershed, then a reserve space of 20,000 acre-feet to March 31 would be detrimental to the irrigation interests.

The estimated runoff of the Little Truckee River, based on February 1 snow surveys and assuming that the precipitation during the balance of the season will be normal, is too uncertain to justify emptying the reservoir, unless there is a large safety factor assuring the filling of Boca after making proper allowances of releases to meet prior rights down the river. This same statement might apply to a reservation of even 20,000 acre-feet capacity for flood control under certain conditions.

Paragraph 53, page 35: Independence Lake and Donner Lake Reservoirs are privately owned reservoirs under the terms of the Truckee River agreement. There is no agreement that the waters of these two reservoirs will be used to maintain any specified flow in the Truckee River. There is an agreement between the Truckee-Carson irrigation district, the Sierra Pacific Power Co., and the Donner Lake Co., in regard to the water stored in Donner Lake, which provides that certain amounts can be used for irrigation prior to September 1, and the balance of the storage can be withdrawn thereafter.

There is no requirement that these reservoirs be operated as flood-control reservoirs, but, as a matter of fact, space is provided in each of the reservoirs during the period of December 1 to March 31 for such use, the amount depending upon water conditions as indicated by the snow surveys.

Table 4, page 37: The total non-Federal first cost to be provided by the interested parties amounts to $862,000, as shown in the table. However, it is believed that it will be necessary to provide further protection for the Derby Dam, due to the fact that larger flows will be incurred at Derby Dam due to cutting of the rim at Vista, which eliminates the regulating reservoir above said rim, and such cost might bring this non-Federal cost to at least $1 million.

In regard to the non-Federal charge of $862,000, plus a possible additional charge for reconstruction at Derby Dam, it is believed that due to the fact that flood control takes the benefit created by such construction, the construction cost should be a Federal charge, if legally possible. It is apparent that the agricultural flooded area benefited cannot stand such a charge, and unless a large part of these non-Federal charges can be included in the Federal charges, or the plans modified, there appears to be no source that would be willing to meet such charges. Furthermore, the annual estimated O. and M. charges to take care of the levees, estimated at $28,000, would be a heavy burden on the farmers in this area.

Paragraph 60, page 44: Table 7 on page 45 indicates an average annual benefit of $20,000 per year for irrigation, due to the Prosser

Reservoir. These benefits are based primarily on deficiencies during 1931 and 1934. It is problematical whether such shortage will ever occur in the future. It appears, and will be confirmed by the studies, that in years of normal or better runoff, the Prosser Reservoir will not conserve as much water as the 174,000 acre-feet of the reduced capacity in Tahoe would conserve. However, in dry years the contrary would be the result, except in exceptionally dry years. The water users committee study of the water supply covering the years mentioned in table VII do not support the engineers' figures, and it is suggested that these figures be rechecked.

Paragraph 61, page 45: By decree and purchase, the Sierra Pacific Power Co. has the right to use Tahoe and Boca water for power purposes. If a part of Tahoe storage is transferred to Prosser, then the power company would have the right to use Prosser water for power purposes. It is requested that the report be modified so as to recognize such right. The Truckee-Carson Irrigation District also has the right to use Tahoe water for power purposes, and the transfer of Tahoe storage to Prosser should not interfere with such right.

Paragraph 71, page 55: This paragraph provides a clause that irrigation interests and private power developed should reimburse the Government for regulation in Prosser Reservoir. The Army engineer's plan requests the water users for permission to transfer a part of Lake Tahoe Reservoir to Prosser. Such transfer destroys the economics of any power development between Tahoe City and Truckee, and also eliminates the proposed development between Truckee and Hirschdale, all without making reimbursement for such rights. In addition to the above, the plan then proposes that the Truckee-Carson Irrigation District and the power company reimburse the Government for benefits accruing to their present plants, and that they also reimburse the Government for benefits to any future development which they are now or may in the future consider. The plan also provides that the irrigators pay for the regulation created at Prosser and benefits due to exchange of reservoirs. The benefits set forth in the report are either problematical or potential, and no consideration is given to the additional trouble, expense and liability created by their proposed plan of development. It appears to us that the water users should at most only be required to compensate for net increase in usable water, plus some reasonable charge for joint use of facilities for power generation, but no charge for regulating their own water transferred from Tahoe.

Paragraph 72, page 56: There is no administrator appointed under the Truckee River agreement, for California. It is not the desire of the three major interests in Nevada that an administrator be appointed in California at this time. They wish, however, to regulate the reservoir and stream flow through a committee represented by such interests, and would not agree to accept orders from the Secretary of War for flood control on all the bases set up in the report.

It should be definitely stated that the Truckee-Carson Irrigation District would be reimbursed for its expenditure in the operation and maintenance of the proposed Truckee River diversion dam, the diversion conduit to Prosser Creek, and Prosser Dam and Reservoir, and that the water users would not be liable for such costs.

Paragraph 75, page 57: In view of the fact that the Army engineers take credit for the benefits resulting from the Tahoe artificial rim and

four dams in the Truckee Meadows (Derby Dam should be added), it appears that the cost of these structures should be charged, if legally possible, to the Federal, and not to the non-Federal interests.

It is the opinion of our committee, based on water studies made by the committee, that the engineers' plan provides full flood relief for the Lake Tahoe property owners, a partial flood relief for the Truckee River, but provides small relief for the deficiency in the irrigation water supply for the irrigators of the Truckee River area and the Truckee-Carson Irrigation District.

It is also the opinion of the committee that the reservoir proposed by the engineers on the Carson River will provide certain flood relief, but will provide only a small benefit for the present irrigation users, unless a more firm water right is provided for the Carson Reservoir.

Furthermore, it is our opinion that a joint development of the 2 rivers will provide a fuller and more economic development than can be secured by 2 separate developments. This joint development can be the means of firming the storage in the Carson Reservoir, and also the means of utilizing more of the runoff of both streams.

TRUCKEE-CARSON WATER USERS COMMITTEE'S SUGGESTED PLAN OF DEVELOPMENT

The development suggested by the committee includes, in general, the plan of development proposed by the Army engineers on the Truckee and Carson Rivers, subject to certain modifications as to the regulation of water in the different reservoirs, development of power at Prosser Reservoir, Hirschdale and Floriston, priming of the water supply for Carson Valley, together with minor changes, and supplemented with the development of a reservoir at Stampede Valley on the Little Truckee River, and a power plant connected therewith on the Truckee River above Verdi, and additional storage at Lahontan Reservoir.

The general plan includes the following inprovements:

1. Improvement of conditions at the outlet of Lake Tahoe, which will permit larger releases of water from Lake Tahoe when necessary in order to prevent the high-water level exceeding the maximum allowable lake level.

2. Reduce the high-water level of Lake Tahoe from its present elevation of 6,229.1 to an elevation of 6,228.0, or a reduction in the storage capacity of approximately 135,000 acre-feet.

3. It is suggested that an agreement be entered into between the Lake Tahoe and Nevada interests for the installation of a permanent pumping plant at the outlet of Lake Tahoe, to be used under certain conditions and restrictions during periods when a deficiency of water supply exists in the Truckee River after the proposed improvements are constructed, and also to be used when necessary in order to prevent the high-water level of the lake rising above the new proposed high-water level of 6,228.0.

4. The construction of a diversion dam about one-half mile west of the Town of Truckee, and a 500 cubic feet per second capacity pipeline and tunnel from that point to the proposed Prosser Reservoir.

5. The construction of a reservoir on Prosser Creek, with a capacity of 135,000 acre-feet, to replace the storage capacity in Lake Tahoe by the reduction of the high-water level in the amount of 1.1 feet. The

construction of the Prosser Creek Reservoir and the Truckee-Prosser flowline to be contingent upon its economics.

6. In order to improve the benefits that can be secured in this development, it is proposed that all the water that the Sierra Pacific Power Co. is entitled to use for the generation of power is diverted into the Prosser flowline and carried to the Prosser Reservoir, and that the Sierra Pacific Power Co. be granted the right to construct a powerplant, or powerplants, below Prosser Reservoir, and utilize the waters flowing into the Prosser flowline, together with the waters released from Prosser Reservoir, for the generation of electric power, and that the Sierra Pacific Power Co. pay, as a benefit to the proposed project, a reasonable charge for the use of the facilities necessary in this proposed project.

7. It is proposed that the Prosser Reservoir powerplant be developed as a peak-load plant, and under such conditions it will be necessary to construct a regulating reservoir on the Truckee River, at Hirschdale, in order to regulate the flow of the Truckee River. Under this condition it is proposed that the Sierra Pacific Power Co. construct a powerplant about ½ mile east of said regulator, and it is further proposed that the power company construct another powerplant at Floriston, utilizing the regulated flow and drop in the river between Hirschdale and Floriston.

8. It is proposed to improve the channel of the Truckee River from Reno to Pyramid Lake, which includes the replacement of certain dams in this area, together with the construction of levees in the lower areas in the Truckee Meadows, and lowering of the rim of the Truckee River at Vist so as to give flood capacity to the channel of the Truckee River through this area, as well as to drain certain areas in the lower end of the Truckee Meadows.

9. The proposed plan on the Carson River includes the construction of a dam at Watasheamu on the Carson River, with a capacity of 45,000 acre-feet, which will provide flood control on the East Carson River, and also provide prime storage, in the minimum amount of 20,000 acre-feet, for irrigation purposes, through an agreement with the Truckee-Carson Irrigation District.

10. It is proposed that a reservoir with a capacity of 150,000 acre-feet be constructed on the Little Truckee River at Stampede Valley, and that a tunnel be constructed to divert such water from the Stampede Reservoir to a point on the Truckee River below Fleish, and there construct a powerplant with a capacity of approximately 20,000 kilowatts.

11. It is also proposed to increase the storage capacity of Lahontan Reservoir by the installation of 6-foot radial gates in the spillway (20 inches of flashboards now in use), for storage and flood-control purposes.

12. In order to conserve nonirrigation season power water, and conserve seepage and drainage water, and provide additional storage water for irrigation for the Truckee-Carson Irrigation District, it is proposed to construct supplemental reservoirs below Lahontan Reservoir, with net storage capacities of 30,000 acre-feet.

Concessions for committee development plan

1. The Truckee-Carson Irrigation District (U. S. Government), Washoe County Water Conservation District, and the Sierra Pacific

Power Co. would agree to the reduction in the storage of Lake Tahoe, in an amount of approximately 135,000 acre-feet, which storage capacity would be replaced in Prosser Reservoir.

2. The Lake Tahoe property owners would agree to improvements at and near the outlet of Lake Tahoe, in order to increase the possible discharge from Lake Tahoe during flood periods.

3. The Lake Tahoe property owners would agree to the installation and operation of a permanent pumping plant located at the outlet of Lake Tahoe, to be used under certain conditions and restrictions.

4. The Sierra Pacific Power Co and Truckee-Carson Irrigation District would agree to the diversion of their storage water from Lake Tahoe and Donner Lake into the Prosser conduit, to be used for power purposes.

5. The Washoe County Water Conservation District and Sierra Pacific Power Co. would agree to the transfer of Boca Reservior storage to Stampede Reservoir when and as it was necessary to conserve the water for the benefit of the Stampede power plant operation.

6. The Sierra Pacific Power Co would agree to the diversion of its Independence storage water and natural flow of the Little Truckee River through Stampede Reservoir and Stampede power plant, for the benefit of generating power at this power plant.

7. The Truckee-Carson Irrigation District would grant the Carson Valley water users a right to store water adversely to Lahontan Reservoir, to the extent necessary to impound, in a reservoir or reservoirs on the Carson River, a minimum of 20,000 acre-feet annually, for irrigation of Carson Valley lands, subject to certain restrictions when and if there was a shortage on the Lahontan project.

8. The Truckee-Carson Irrigation District and Carson Valley water users would enter into an agreement as to the use of the waters of the Carson River. This agreement to be made a part of the Carson River final decree, which would be for the mutual benefit of each party.

9. In order to make the proposed development of Stampede Reservoir economically feasible, it is proposed that the Sierra Pacific Power Co, Washoe County Water Conservation District, and the Truckee-Carson Irrigation District pool their water rights on the Little Truckee River for the benefit of creating sufficient water, together with other floodwaters, to operate the Stampede power plant.

10. It is further proposed that a contract be entered into with the Truckee, Carson Irrigation District and Sierra Pacific Power Co. for the sale of the entire output of the Stampede power plant for a period of 30 years, and it is further proposed that if such contract be not renewed at the end of the 30-year period, that the irrigation district and power company be allowed to purchase, at a reasonable cost, all power generated by waters that are contributed by the irrigation district, conservation district, and the power company, it being understood that the power company has purchased from the conservation district the right to use waters stored and released from Boca Reservoir, which are now proposed to be transferred to Stampede Reservoir, subject to the same condition.

Results of committee plan

I. Provides same flood benefits to Tahoe area as engineers' plan.

II. Provides more flood benefits to Reno and lower Truckee area, as it provides full control of the Little Truckee River as well as Prosser

Creek, and, according to the water study, reduced the maximum flow in the 1950 flood to approximately 10,000 cubic feet per second, or about one-half of the actual flow.

III. The engineers' plan provided about 5,000 acre-feet average annual increase supply for irrigation in the Truckee River, which is about 2 percent of the controlled flow and about 18,000 acre-feet (not prime) for Carson Valley, while the committee plan would provide about 50,000 acre-feet average annual increase supply for the Truckee, Fallon, and Carson Valley areas.

IV. The committee plan provides for 34,000 kilowatts of net additional power, and an average annual output of 135,000,000 kilowatt-hours, net, in the Truckee River system.

Modification of decrees

Before any proposed plan that has been agreed upon by all of the parties in interest can become a reality, as a prerequisite thereto, the 1915 Federal decree, the Truckee River final decree, and the Truckee River agreement, of necessity, must be modified in two Federal courts, with the unanimous approval of the four major parties to said agreement.

That concludes the statement, except that we reserve the right to edit it and to make certain additions after we receive further information.

Senator MALONE. If there are any questions of Mr. Devore, we can have them tomorrow afternoon. The hearing is now recessed until 1:30 p. m. tomorrow.

FLOOD CONTROL, POWER AND WATER RESOURCE DEVELOPMENT, TRUCKEE AND CARSON RIVERS, NEV.

WEDNESDAY, AUGUST 27, 1952

UNITED STATES SENATE,
SUBCOMMITTEE ON FLOOD CONTROL,
RIVERS, AND HARBORS OF THE
COMMITTEE ON PUBLIC WORKS,
Reno, Nev.

Senator MALONE. The meeting will come to order. We will continue with the hearing of the Bureau of Reclamation witnesses. We will have Mr. Hunt again. Mr. Breen, you may continue your questioning.

Mr. BREEN. Mr. Hunt, from the aspects of flood control, with such a flood as we had here in Reno in 1950, if the Prosser and Stampede Reservoirs had been built and filled would you have been able to control the damaging part?

Mr. HUNT. Yes; those reservoirs would have at least controlled the major part of the flood.

Mr. BREEN. You wouldn't be able to control it all, as far as the city of Reno is concerned?

Mr. HUNT. We would be able to control half of the water that came down to Reno, approximately 10,000 second-feet.

Mr. BREEN. That is if those reservoirs had been empty?

Mr. HUNT. You would have been able to contain half of the water, yes.

Mr. BREEN. Then if the reefs had been removed from the lower Truckee Meadows, that would have relieved the city of Reno too, would it not?

Mr. HUNT. That is correct.

Mr. BREEN. Will you explain to me, if you can, how it is you can separate the flood-control aspects of this program from the power aspects of it?

Mr. HUNT. One, we would have a considerable different portion for each. Two, it is not in the better interests of utilization of water resources to stop floodwaters and then let them out, without getting the most benefit from them for irrigation and power.

Mr. BREEN. Now, as far as the construction of these powerplants and other features having to do with the generation of power, is it correct that the cost of the powerplants and other features will be repaid?

Mr. HUNT. The cost of the powerplants and other features that contribute to the generation of power would have to be repaid to the Government in 50 years, at 3 percent interest. The cost allocated to irrigation is to be repaid in 50 years, without interest; in some cases, it must be subsidized by the power production.

Mr. BREEN. In any event, those two cost factors are repaid to the Government?

Mr. HUNT. That is correct.

Mr. BREEN. Now, I believe that yesterday you stated that, according to your studies, you would be able to make available, or to conserve, I believe it was, 3,000 acre-feet of water that would be available for irrigation.

Mr. HUNT. I think you are confusing me with the Corps of Engineers. That was their study.

Mr. BREEN. Do you have any figures on that?

Mr. HUNT. We have figures for three different plans. Some of them have been converted to how many acres we can furnish water for. It is a little difficult to segregate them for any one system.

Mr. BREEN. Could you give us a figure as to the amount of additional water that might be available as a result of the construction of the Stampede and Prosser Reservoirs, under plans 2 and 3?

Mr. HUNT. Do you want that figure as of a dry year, or how?

Mr. BREEN. However you have it computed.

Mr. HUNT. From those two reservoirs, I think around 25,000, between 20,000 and 25,000 additional acre-feet.

Mr. BREEN. That is additional water?

Mr. HUNT. Yes.

Mr. BREEN. In conducting these studies, how long, about, has it been since these three plans that you have described have been in a fairly definite stage?

Mr. HUNT. Two weeks.

Mr. BREEN. Is there much change in the plans you have now from the general plans that were reported on in June 1948, entitled "The Lahonton Basin"?

Mr. HUNT. Yes. That report was, basically, an inventory of the possible plans and developments that would be made around the Lahonton Basin. It has little direct bearing on any comprehensive plan. It was more an inventory of dam sites and other things of that nature.

Mr. BREEN. There are certain conclusions in that report as to the effect on fisheries. Are you familiar with those conclusions?

Mr. HUNT. Not offhand.

Mr. BREEN. On page 143 of that report, under "The Prosser project," there is a comment on the effect of the plans on the fish life, as follows: (Reads.) Would you care to comment on that?

Mr. HUNT. May I ask who wrote that? Is that our own Bureau report, or a report from the Fish and Wildlife Service? I am not familiar with the reports from other agencies.

Mr. BREEN. It says:

To the Commissioner of the Bureau of Reclamation, basic report, June 5, 1948.

Mr. HUNT. We don't ordinarily put in anything of that kind. I might add this: that in the preparation of these findings we normally confer with the Fish and Wildlife Service, and we did so in that instance, and also with the California and Nevada Fish and Game Commissions, to save us the time and trouble of investigating those matters, in detail, ourselves. In investigating a series of plans, we normally get them to prepare a statement as to the general fisheries and wildlife benefits in the particular plans. We have made consider-

able effort to insure that and to consider the fisheries aspect of it, so that we will not damage any of the existing conditions, and where damages are unavoidable, we recommend fish ladders or other improvements.

Mr. BREEN. Do I understand, then, that at the time this report was written the Fish and Wildlife Service was incorrect in their statements?

Mr. HUNT. We cannot comment on that. In that inventory those statements were for the local Lahonton system, and do not necessarily pertain to the whole Lahonton Basin.

Mr. BREEN. Could you point out the difference between the plans referred to here and the plans as presented now, so far as the fisheries are concerned? Can you tell us, offhand, of any major changes in regard to the fisheries aspect?

Mr. HUNT. The Washoe reconnaissance report I think gives a little different view of the fisheries aspect than you will find in this report, in that there was particular emphasis on the Pyramid Lake district, and in that the conclusion was reached that every effort should be made, consistent with other uses of the water, to furnish as much as possible for the rehabilitation of the fish.

Mr. BREEN. I understand your testimony to be, then, that so far as the conclusions of the Fish and Wildlife Service in this Bureau of Reclamation report of 1948 are concerned, that they would no longer apply to the project? Or are you not in complete accord with them? What do you mean?

Mr. HUNT. I think I could properly say here now that we are not in accord with them.

Mr. BREEN. In other words, you think the Fish and Wildlife opinion is not correct?

Mr. HUNT. I don't think that it applies, in full.

Mr. BREEN. Would you say conditions would be different under the report you are now preparing?

Mr. HUNT. Yes; you have different development. For instance, there is a statement in there that the water would be too warm for fish, that in many cases the reservoirs would become ponds. We have been taking temperatures from reservoirs for some time, and most of our reservoirs would be of the same or higher elevation, and that water would be as cool, or cooler than the normal stream water.

Mr. BREEN. Is that because there has been a change in plans?

Mr. HUNT. I am not thoroughly familiar with what is in there, in detail. But, as I remember, it is an inventory report, rather than a detailed report.

Mr. BREEN. It is a report prepared by your organization and incorporates conclusions prepared by the Fish and Wildlife Service which, generally, state that if the plan were put into effect the fishing will be destroyed in the Truckee River.

Mr. HUNT. I think it is that the fishing would be impaired, not destroyed.

Mr. BREEN. Well, let's take the actual working of this conclusion. I am trying to find out where you disagree with them. Do you disagree with them because their conclusions were incorrect at the time of the report, or because of changes in the plans?

Mr. HUNT. As I remember, that was in 1946.

Mr. BREEN. 1948.

Mr. HUNT. It was published in 1948, but I believe the material was gathered in 1946. Incidentally, there will be a statement in our forthcoming report covering the Fish and Wildlife Service's general attitude on that report. Whether they want to change their attitude, I don't know.

Mr. BREEN. Would you be prepared to accept the Fish and Wildlife Service's report at that time?

Mr. HUNT. We would have to accept their report. We just include it in our report. We try to do what they say, as far as we can.

Mr. BREEN. Would you accept their conclusions as correct?

Mr. HUNT. I can only speak for myself. I had better explain these reports a little; they have to clear the district office, and then the Washington office.

Mr. BREEN. Then, answering for yourself, would you accept as correct the conclusions formulated by the Fish and Wildlife Service?

Mr. HUNT. I will say that we will consider them very, very carefully.

Mr. BREEN. That doesn't answer my question. Would you yourself be prepared to accept them as correct?

Mr. HUNT. I would have to consider them first.

Mr. BREEN. Let me ask you this question: If you do not accept the Fish and Wildlife Service's conclusions, upon what basis would you disagree with them? What technical knowledge would you rely upon?

Mr. HUNT. I would have to see their conclusions, what they report. And usually we discuss those things. We do not always agree with some of their conclusions; we do not always agree that, when there is so much water, so much of it has to go for fish and so much water for another thing. We try to get an equitable distribution of the water. If they say they need 500 second-feet of it in a river, I don't necessarily agree that that has to be there.

Mr. BREEN. Would you accept the conclusions as factually accurate?

Mr. HUNT. Yes. The funds they expend to determine fish benefits and losses come out of our office. Each office of the Bureau of Reclamation has a certain allocation of funds for that purpose, and we turn some of that money over to the Fish and Wildlife Service.

Senator MALONE. Mr. Breen, there are some people here that must go home; and, if you will now defer to them, it will be appreciated.

Mr. BREEN. That will be satisfactory.

Senator MALONE. Are there any other questions of Mr. Hunt?

Mr. DEVORE (of Lake Tahoe Water Conference Committee). Mr. Hunt, assuming that one of the plans of development you propose materializes, and you take over the operation of the units, including Lake Tahoe, would it be your opinion that water would have to be released for fishlife when it could not be used for irrigation or power purposes?

Mr. HUNT. I am going to have to fall back on the decree, as has been done in the past. As I understand the decree, as far as I can tell, privately owned storage water is released at the direction of the people who own it.

Mr. DEVORE. I will clarify the question a little more. We will take Lake Tahoe and Donner Lake stored water. Take Lake Tahoe, for instance. The natural flow in the river amounts to over 500

second-feet; then whatever stored water you used from Lake Tahoe would be in conflict and could not be used for irrigation or power. Would you, in your capacity, feel that it should be released, even though it were stored water?

Mr. HUNT. As I understand it now, that water would not have to be released. It would be a good thing to see if something could be worked out to take care of a smaller flow of water and protect the fishlife.

Mr. DEVORE. I presume that you would not have any objections to making adjustments to protect the rights of people who had claims to that water?

Mr. HUNT. Well, I think the flow could be adjusted without getting above your Floriston radius. If we have the Prosser and Stampede Reservoirs, and were holding water in them, we would have the opportunity to throw that water to the Lahonton Reservoir. And I think consideration should be given to that condition when we get to the point of stipulating on the decree, so we can take care of those things.

Mr. DEVORE. Then, returning to the 25,000-acre-feet average flow in the river, according to my calculations there would be an increase in the regulated flow of some 6 or 8 percent. The power company has certain power rights to the water; there are also certain riparian rights in Nevada and California, and, likewise, rights to develop power in California. Do you think that, considering these rights, with the small increase in the flow of the river, you would be justified in considering in your report any special recommendations as to the variation of the power policy of the Bureau?

Mr. HUNT. I prepare the report. It would then go to the Salt Lake office, where recommendations are made, and then is forwarded to Washington. I don't believe that, under the conditions, I would be able to make recommendations of that type. I can note it, but under the present laws I don't believe, in the editing of my report in the Salt Lake office, that particular point would be included in the recommendations.

Mr. DEVORE. There is a potential minimum of some 36,000 kilowatts of power that can be developed from the Truckee River, according to your report. This power can be used and is desired by the distributing company in Nevada. But, if as a matter of policy such power is not available for use in this State, it means that this area is going to be harmed by the power development under that policy.

Mr. HUNT. On the river now there are about 10,000 kilowatts of capacity, under the minimum flow. We can develop some 34,000 kilowatts, and later develop considerably more. We would develop a minimum of three or four times the power currently developed.

Mr. DEVORE. You will be using 93 to 94 percent of the water that the Sierra Pacific Power Co. is entitled to for the generation of power. Can you, in your report, at least make some note that the power developed will be available to the people of Nevada?

Mr. HUNT. The Sierra Pacific Power Co., as I understand, has the right to divert certain water at certain plants, for the production of power, and I believe that right is secure, and that the plans would not impair those rights. In other words, most of the water would continue to go through the same channels.

Mr. DEVORE. I think probably your statement is correct as to the natural flow of the river. However, as to storage, I refer you to the 1915 decree, to the Truckee River decree, and the Truckee River Agreement, and, also, the laws of the State of California. These decrees and laws give the power company the right to the development of further power on the river. I do not ask you to answer that that question at this time, but I would like to have you consider that in your report.

Mr. HUNT. I think that can be considered when the report is prepared. The power rights, of course, will be considered; we will, of course, note that.

Mr. DEVORE. I think, Mr. Hunt, it is quite proper for you, in making your report, to consider all the statutes. I notice they did in the Army report, and I was wondering if in your report you are ignoring the laws of the State of California as to power and riparian rights.

Mr. HUNT. No. We will consider that.

Senator MALONE. Are there any further questions of Mr. Hunt at this time? If not, I will ask you, Mr. Hunt, if you will be so kind as to outline the power possibilities of the three plans again, and be sure and give us the approximate load factor and the kilowatt-hours.

Mr. HUNT. All right. You want the power capacity and the load factor?

Senator MALONE. Yes.,

Mr. HUNT. In plan No. 1 there is the Stampede powerplant, with 4,500 kilowatts. I will only give you one load factor, because it has all been integrated together.

Mr. DEVORE. One load factor for the entire plan?

Mr. HUNT. That is correct. The Mystic powerplant, 11,500 kilowatts. The Woodfords plant, 5,000 kilowatts. The Paynesville, 6,000 kilowatts. The Franktown plant, 15,000-kilowatts. The Watasheamu plant, 7,000-kilowatts. The Eureka, 7,000 kilowatts. For a total installed capacity of 56,000 kilowatts, with a plant factor of 59 percent we would have 324 million kilowatt-hours annually, of which 202 million is firm.

Mr. DEVORE. Will you state what you used for a factor?

Mr. HUNT. In any area you have a load that varies, from day to day, month to month, in the use of electrical energy. For instance, in the winter there is more demand for lighting and heating fixtures, and so we consider those requirements. Now, any power system must be so designed as to meet the peak, and so, as a result of that, we must install more capacity to handle these peaks, on a yearly average, the same idea, perhaps, as having more power in your car for starting and stopping.

Senator MALONE. Will you state, for the record, what you mean by "load factor?"

Mr. HUNT. Well, I hope I can turn that over to Mr. Maughan.

Mr. MAUGHAN. Load factor is the characteristics of the consumption of energy in a particular area, whereas plant factor is the characteristic of the generating plant.

Senator MALONE. I didn't quite understand what you said.

Mr. HUNT. Well, the load factor represents, in percent, the ratio of peak demand to average demand. For instance, take the Sierra Pacific Power Co. load area, if they have a peak demand twice that under average conditions, the load factor would be 50 percent.

Senator MALONE. What is the particular difference between that and plant factor?

Mr. HUNT. The plant factor is the ability of a particular plant or system of plants to meet that load factor. While it is desirable to have the plant and load factor coincide, sometimes it is not feasible to construct a lot of capacity in hydroelectric plants when it is a lot cheaper to get it from a steam plant. In other words, the load factor is the demand for energy, the plant factor is the capacity to deliver energy. You try to get them both together; sometimes you can't.

Senator MALONE. Now let's go to plan No. 2.

Mr. HUNT. The powerplants there, Stampede has 4,500 kilowatts. Mystic is larger, 14,500 kilowatts, since Lake Tahoe water will be flowing through it in the second channel. Prosser, 4,500. Woodfords, 5,000, no change. Paynesville, 6,000; that corresponds with plan No. 1. Watasheamu is larger, at 9,500. The total is 44,000 kilowatts. The plant factor is also 59 percent. The energy amounts to 177 million kilowatt-hours firm and 80 million kilowatt-hours secondary, for a total of 257 million.

Senator MALONE. Now plan No. 3.

Mr. HUNT. The Floriston plant, 3,000 kilowatts; the Hirschdale, 1,250; the Verdi, what we call New Verdi, 19,500; the Prosser, 12,500; for a total of 36,250 kilowatts, with a plant factor of 47 percent. That will develop 145 million kilowatt-hours, of which 80 million is firm and, I believe, 65 million nonfirm.

Senator MALONE. Are there any further questions of Mr. Hunt at this time? If not, we will excuse him, at this time.

Mr. HUNT. I might go record now as saying that the three plans were compared similarly, and a change in one would change all of them.

Senator MALONE. We will hear from Francis Smith, the mayor of Reno.

STATEMENT OF HON. FRANCIS R. SMITH, MAYOR, CITY OF RENO, NEV.

Mr. SMITH. I have a brief statement to make, that is based on the city of Reno's official comments to the Corps of Army Engineers 1946 interim survey report. It is as follows:

The city of Reno is primarily interested in the flood-control features of the proposed plan, in order that maximum protection be provided to lives and property within the cities of Reno and Sparks, as well as the supporting suburban and rural areas.

For example, the disastrous 1950 flood damages to this community were assessed at $3,500,000. During the first 6 months of 1952 we were exposed to a flood threat which could easily have repeated the 1950 damages. Immediately after the 1950 flood the city spent $25,000 to replace the fixed dams in Wingfield Park with removable structures, which, together with the Army engineers' channel clearing and snagging, greatly improved riverflow conditions through the city. In spite of these improvements, the channel is limited by the existing bridges, and if ideal runoff conditions had not prevailed during the first 6 months of this year extensive damage could have easily resulted. Property owners and occupants in the danger area were put to considerable expense again this year in anticipation of expected damaging high water. Preparations made by these property owners, plus prep-

arations made by the city during the first part of 1952, are estimated at $25,000.

We understand that the emergency channel clearing and snagging project as before mentioned will preclude the necessity of including this particular phase of the work in the overall project. We are also proposing the two removable structures at Wingfield Park in Reno as substitutes for the gated structures proposed in your report.

In addition, the city is also interested in the channel improvements in the Truckee Meadows, insofar as they would provide improved drainage, and, therefore, increased agricultural development in this particular area.

The city is also intensely interested in the development of additional upstream power and water conservation facilities, therefore the proposal by the Truckee and Carson River water-users committee that Stampede Reservoir be included as an addition to the plan meets with our approval. During the 1952 runoff Boca Dam was operated purely on a flood-control basis; no attempt was made to store water. The inflow during the first 4 months of the year exceeds the discharge capabilities of the structure. With both needle valves open, the discharge was under 800 second-feet until the level of the reservoir reached the spillway to allow additional discharge. Boca reached its spillway on April 25, so when it was most useful for flood control there was only a cushion of approximately 15,000 second-feet remaining. The reservoir impounds 26,701 acre-feet before it will discharge over the spillway.

The proposed 150,000 acre-feet Stampede Reservoir that can be used to supplement Boca, with its creation of new storage and power development would produce great economic benefits to the area, in addition to its flood-control functions.

In regard to the proposed Prosser Reservoir and the resulting lowering of the Lake Tahoe elevation from 6,229.1 to 6,228 feet, we have the following comment to offer:

(*a*) The total cost of the recommended plan of improvement, as shown on page 37 of the report, is $13,360,000. The Truckee River diversion and Prosser Dam Reservoir account for $10,861,000, and its proposed operation will provide only approximately 15,000 acre-feet of rain flood storage during the critical period between December 1 to April 1. Prosser Creek's peak discharge, on page 11, is shown as 3,100 cubic feet per second. We have not been able to secure accurate figures on the November 1950 runoff, but it evidently exceeded that figure. Based on a discharge of 3,500 second-feet, Prosser would provide approximately only 48 hours protection.

(*b*) Since Prosser Reservoir and the diversion channel is the major portion of the overall plan, its justification must depend upon improvements to recreational facilities at Lake Tahoe. Your report evaluates the recreational benefits based upon attendance at the lake, with a correlation between lake level and the number of people that visit the area. Without the facts upon which to base our judgment, we do not believe that lowering the lake level to 6,228 will effect attendance. Property damage to existing installations is another question, but offhand it seems the main problem is control of construction at any predetermined high-water mark. Since the lower level of 6,223 is not to be disturbed, the problem of regulating the lake would

become more severe if the present 6 feet is reduced to 5 feet between the low- and high-water controls.

It is interesting to note that the lake level has not exceeded the 6,229.1 since its control was taken over by TCID. Snow surveys and predicted runoffs have now reached a stage of perfection where the lake can be accurately controlled. This last season is a good example of accurate control under abnormal conditions.

(*c*) Your report shows a normal runoff of 67,800 acre-feet for Prosser Creek. Data that we recently secured, from June 12, 1951, to May 18, 1952, shows a runoff of 72,000 acre-feet, which, if extended to June 12, 1952, to complete a full year, would probably reach 100,000 acre-feet. Other data shows the 1909 runoff was 127,000 acre-feet, and 1910 was 90,000 acre-feet.

We therefore believe further study should be given to the construction and operation of Prosser Reservoir, with the idea in mind of providing additional storage and flood control to that proposed in your report, which, when integrated with the operation of Boca and the proposed Stampede Reservoir, would provide the ultimate in protection and water conservation for this area. However, the city of Reno will not oppose the Prosser-Lake Tahoe storage transfer plan as now proposed, if present day costs show that it is justifiable.

We will appreciate your consideration of the foregoing comments in the development of a final overall plan.

The city of Reno, by resolution of its city council, urges that the Army engineers, together with all parties affected, work with all speed toward the preparation of a final report, so that actual legislation may soon be adopted guaranteeing the prompt construction of this project so important to the economy and welfare of western Nevada.

These comments are offered as a part of our testimony, for the record.

Senator MALONE. They will be accepted as a part of the record.

Mayor SMITH. I believe that it was a matter of great satisfaction to the representatives of the city of Reno to see that the Truckee-Carson Water Users' Committee was able to offer last night, at this hearing, their comments on the Army engineers' interim report. I know that the members of that committee have had a difficult time getting all of their members together, and we in Reno and vicinity have become somewhat impatient at times, and perhaps unjustly so. But we are very happy to hear that those comments have been made. And I at this time, for the record, want to congratulate Mr. Devore and his committee of water users for getting that report together. We are, naturally, most interested in the flood-control features of the plans, and we want to do everything we can in working with all to see the reports made, and a plan in the making for our protection.

Senator MALONE. Then you believe, Mayor, that as long as these plans have been made public, and both the Army engineers and the Bureau of Reclamation appear to be willing to proceed, according to the testimony, that it should result in some tangible results in 3 or 4 months, which time is necessary for the Army engineers to arrive at a report, and a few months for the Bureau of Reclamation to complete their's?

Mayor SMITH. Well, we feel, from the very fact that the comments have been offered, that we are now on the way to getting the Army

engineers started in the preparation of their next report. It certainly helps the situation, and we are very hopeful.

Senator MALONE. There have been no comments previously in this matter?

Mayor SMITH. The city of Reno made its comments to the Army engineers, on July 11.

Senator MALONE. What I meant was before that.

Mayor SMITH. No, I am not sure that there were.

Senator MALONE. It appeared last night that the Truckee-Carson project would have their's ready in 60 days, and, from the testimony of Mr. Hunt, the Bureau of Reclamation should be ready to do something about it then.

Mayor SMITH. The city of Reno certainly hopes so. I personally feel, of course, that this hearing and anything your Senate committee can do will help matters.

Mr. ROGER TEGLIA. I don't know whether Mayor Smith can answer my question or not, but I would like to ask Mayor Smith or Mr. Hunt whether or not plan No. 3 agrees with the flood-control agreement of 1950.

Mayor SMITH. I think Mr. Hunt is more competent to answer that.

Senator MALONE. All right, we will have that later. We will now hear Mayor Fodrin, of Sparks, who has been very patient.

Mr. D. J. FODRIN (mayor of the city of Sparks). The people of Sparks are very much interested in all the proceedings here. However, our pressing problem is the sewer condition in Sparks, brought about by the high-water table and the flooding of the Truckee Meadows. Now, to give you an idea, we have a sewage flow at the present time of over 4 million gallons daily, or 500 gallons daily per capita. About 75 percent of our sewage is water, due to the high-water table, during the flood season. Now, our difficulties don't start until there are 6,000 second-feet in the river, then the sewage starts to back up. When there is 8,000 second-feet in the river, the disposal plant doesn't function, because it is practically under water, and then the sewage backs up into the homes and everywhere else. Now, it was stated yesterday that that isn't an emergency. They ought to be in my shoes for 24 hours and see whether it is an emergency. Of late years it has been much worse. This is my 22d year in the city of Sparks, and in 1950 and this spring were about the worst years. I think there was 19,000 second-feet of water that went through Reno, and it covered up the highways, bridges, and our disposal plant; we had to move our machinery out of the disposal plant. That is our problem in Sparks, and our immediate remedy would be the removing of the reefs in the Truckee River at Vista. To a certain extent, that would lower the water table and prevent the water from backing up. I understand the capacity of the river over the reefs is 3,500 second-feet, and then it starts backing up. That is true every year, and the whole eastern part of the valley is under water. The colonel said yesterday if they were catching catfish out of some homes that would be an emergency. Well, that was what they did in Sparks, only they weren't catfish, they were trout. Now, I have prepared a statement that is very brief, but it sets forth the situation. It is as follows:

The city of Sparks considers the high water table level and flooding of the East Truckee Meadows the most pressing problem of the Truckee River flood-control program.

This problem is a constant one and not limited to excessive runoff periods during wet years or flash flood conditions. It is a problem of water table levels being inches below the surface of the ground in large areas of the city of Sparks and in large areas of land east of the city, a problem of the water standing above the surface.

The effect of this condition is that construction of residences and commercial buildings is seriously hampered, large areas of land are rendered wholly useless for any purpose. The open water areas create a serious mosquito problem for the whole valley, and a sanitation problem is created through inadequate drainage of sewage in the valley.

A direct result of the high water table is that the city of Sparks is faced with the problem of expending $450,000 to replace sewer lines and enlarge the sewage-disposal plant. Engineers making a survey of the sewage problem estimate that $300,000 of the expenditure will be necessary to correct ground water infiltration of the present lines.

It is recognized that to effect proper control of the Truckee River, it will be necessary to have upstream storage control. On a long-range program such control would materially benefit Sparks and the whole western part of Nevada.

However, clearance of the Truckee channel between the Glendale bridge and Lockwood Canyon is such a pressing problem the city of Sparks recommends this part of the program be considered first, and, if necessary, done separately from the rest of the program.

In Sparks, at certain times of the year, our plant is not overloaded. Our main trunk line is a 21-inch line, and at certain times of the year there is about 12 or 14 inches in that line. But during high-water season in the river we are trying to run 24 inches through that 21-inch line, and it is a scramble, and some of it gets out on the street, and this running out on the streets rots the manholes out. But when the water level drops in the river we are sitting pretty, we don't get any more complaints.

Mr. A. M. SMITH. Mayor Fodrin, I think it is apparent that there is a great necessity for the removal of the reefs at the mouth of the canyon, to obviate the menace to health, property, and so forth, that you have detailed in your statement. But, as pointed out yesterday, I think by Colonel Burns, if that particular part of the overall project was separated and constructed immediately, as a separate project, it might to such an extent reduce the ratio of benefits to cost on the remainder of the project as to put it in a category that Congress would not approve. Also, as has been pointed out—I don't know whether it was brought out here or not—the elimination of the reefs there would afford quite a flood hazard downstream, and might result in floods coming down through the unrestricted passage and washing out the Derby Dam and damaging agricultural land downstream, to a large extent. Possibly the upstream projects should be constructed first, to obviate the possibility of floods coming down and wiping out the Derby Dam and agricultural property below the reefs. I wondered if you have given consideration to that.

Mayor FODRIN. That has been brought up two or three times. You say it may wash Derby Dam out. Now, when the water gets up to a certain level the same volume of water has to go through the river anyway; it doesn't take long to fill the meadows up, then it goes through wayway; so I don't think that would apply, because the same volume of water goes through. In 1950 the meadows filled up in a short time, then the same 19,000 second-feet going through Reno was going over the reefs.

Mr. A. M. SMITH. Then you do state it is a feasible thing to get at the removal of those reefs as soon as possible?

Mayor FONDRIN. Yes; that is from an emergency standpoint; I don't know anything about the engineering part. Now we have to sandbag our disposal plant when the water gets so high, and the water keeps backing up in town. We couldn't use the Glendale bridge or the Glendale highway, and it blocked United States Highway No. 40 for a while; they had to use a boat. The Highway Department, I understand, raised the roadbed there about 18 inches. And it seems funny we have to put up, year after year, with this flood condition. We have 9,000 people in Sparks, and there are a lot of people outside the city limits, they can't cultivate their fields, they are just swamps, and by the time the water runs off it is too late to plant crops. And sewage runs all over the place, and lots of mosquitos breed there. Now, this statement of ours was started by some of the Sparks people, all of them, in fact, agreed with it, and it was passed unanimously by the city council. There is a three-quarter of a million dollar school there, and there were notified they couldn't connect up with the sewer until this was taken care of, so we won't have a school. There is also a Government housing project there, for the personnel of Stead Airforce Base. And our percentage of growth the last 10 years was the highest of any spot in the State of Nevada. They are building now 480 homes, the permits have been issued, and there are applications for 306 more. And we are building that school and a $200,000 furniture store.

Mr. HAROLD DEPAOLI (chairman of North Truckee Soil Conservation District). If these reefs were removed, we are interested in whether there would be an additional amount of water go down the river. If a greater amount of water goes down, we will all be in danger. I am wondering how, under these three proposals, we will be protected from floods. I would like to hear the Bureau of Reclamation and the Army engineers make any statements as to what would happen to us.

Senator MALONE. Will you take your time and submit your comments in writing?

Mr. DEPAOLI. Yes.

Mayor FODRIN. If the reefs were removed, the water would only reach them 24 hours sooner. As it is now, the same amount of water reaches them anyway after the meadows are filled. The reefs don't divert that water, they just dam it up, and you get it a day or so later. This spring the high water continued for 60 days, so there was a delay of only 2 or 3 days, and then they got the same volume of water. I might add that there are also trees, just a few inches apart, clear across the river just a short way from the reefs. If those trees were removed it would help to a certain extent. I moved to Sparks in 1902, with a construction crew, and they started talking about floodwater then, because at certain times of the year it even flooded the highway surveyors out, and we have been talking about flood conditions since 1902, that I know of.

Senator MALONE. Thank you, Mayor Fodrin. We will now hear from Mr. George Kehlet.

Mr. GEORGE KEHLET (owner of Meeks Bay resort, Lake Tahoe). There has been considerable discussion here today and yesterday in regard to power, irrigation, flood control, fish and so on and so forth. Very little has been said for the property owners at Lake Tahoe, and I thought it would be a good thing to go on record as a property owner

there. I have had a resort at Tahoe for 32 years. I have seen this problem handled in many years. There should be some sort of a settlement of this water question. The high waters are a very definite problem to us. The beaches and natural beauties and resources of Tahoe are in danger, with these periods of high water. The discussion yesterday in regard to piers and tangible property such as houses and so on is a very small consideration. Our losses are based upon the future; the future is resort recreation and hotels and homes, real estate, and things of that kind. We feel that we must know definitely where we are going to stand each year. The resort business is, possibly, the fifth largest business in the United States today. Our greatest loss comes when we lose the beaches; the water comes up, and you haven't the proper facilities for bathing and things of that sort, and people now are educated to their use. At the present time my place is badly crowded with people from all over; they come there to use the beach. A lot of the property at Lake Tahoe has been taken off the market by the State and Federal governments, for parks. We think we are a part of this setup, from the standpoint of revenue. We feel we are just as important in this program as the power and agricultural interests. All we want is consideration of this 1 foot of water that seems to be hanging in the air. We feel, very definitely, that something must be done. I am on the verge, in my small way, of spending close to $400,000 in improvements. I have no intention of going further with it until some settlement is made in regard to the water. I cannot handle the business I have on the beaches, and I know there is not the possibility of doing the business unless we have proper facilities for handling it. At the present time the water is high; it was kept high all summer; because of abnormal precipitation during the winter, the ground is thoroughly saturated with water; consequently our sewer systems are not working. So, for your consideration, I would like to have in the record that we are part of this deal pertaining to the control of this water. We know Nevada needs power; we know Nevada needs water for agriculture; and we are glad to see them get it, and will help them in any way we can; they are part of our district, and it is necessary that we all go together.

Senator MALONE. For a good many years the people of Nevada have enjoyed Lake Tahoe, and we would hate to see any impairment of its value; and that is the purpose of this hearing, to make of record the views of various interests.

Mr. KEHLET. I sincerely think this is possibly the most sincere effort that has ever been made, since I have been at Lake Tahoe, to solve this problem. The various reports in regard to the water situation at the lake and its problems have been greatly enlightening to the property owners there. There are large interests at Tahoe, and are becoming more and more so. There are a lot of fine homes there, that cost from $60,000 to $80,000, and more are coming in.

Senator MALONE. Thank you, Mr. Kehlet. We will now hear Mr. Phil Hiibel.

Mr. PHIL HIIBEL (project manager for the Truckee-Carson Irrigation District). Our statements and comments, Senator, are included in the water users' committee report that was submitted to you by the chairman yesterday.

Senator MALONE. Have you any further comments to make?

Mr. HIIBEL. Nothing at all.

Senator MALONE. The report, as I understood, was to have some corrections.

Mr. HIIBEL. That is right.

Senator MALONE. Does the water users' committee's report meet with the approval of you and the board of directors of the Truckee-Carson Irrigation District?

Mr. HIIBEL. That is correct.

Senator MALONE. The comments of the Truckee-Carson Irrigation project itself are not yet ready?

Mr. HIIBEL. They are now in the process of being assembled, but they are not in a position to make any comments at this time.

Senator MALONE. How long would it take to prepare them?

Mr. HIIBEL. Possibly 60 days.

Senator MALONE. Any statement they desire to make may be submitted to the committee. Do you have any further statements at this time?

Mr. HIIBEL. No; I believe not.

Senator MALONE. Would anyone like to ask any questions? If not, that is all, Mr. Hiibel, and we thank you a lot. Now we will hear the Washoe County Water Conservation District, Mr. Taylor, engineer. You may take the chair, and make any statements you desire.

Mr. CHESTER C. TAYLOR. My name is Chester C. Taylor. I am engineer-manager of the Washoe County Water Conservation District. Any comments I would make are included in the report submitted by the Truckee-Carson Water Users' Committee, which was submitted by Mr. Devore last night. We approve that report. It is submitted to our board, and it will go over it and make any further suggestions we may have. I believe the manuscript will be ready in 30 to 60 days, at which time my board will go over it. It will be submitted to our board as soon as we get it.

Senator MALONE. They may have it in 90 days?

Mr. TAYLOR. I think that will be the maximum.

Senator MALONE. Have you any further statement?

Mr. TAYLOR. This is for the Army engineers to consider. In tables 4 and 5, on page 37 of your report you mention the Wingfield Bridge, the Asylum Bridge and the Lagomarsino Bridge. For the Wingfield Bridge you have $360,000. Now, the next item is, practically, $200,000 for the Asylum Bridge. It is my recollection that at a meeting we had with the Army engineers it was decided we could eliminate that dam if we wanted to; but I note a statement that the engineers amended their plan to just put in a flashboard-type dam, like the city of Reno has at Wingfield Park. Do you recall that agreement that we could eliminate it?

Colonel D. S. BURNS. Yes. That was satisfactory.

Mr. TAYLOR. Now on the Lagomarsino Dam, it is the opinion of the Truckee-Carson Water Users' Association that we could pump that water much more economically; we could install pumps at a cost of $196,000. I understand the Washoe County Water Conservation District was willing to stand the cost of the maintenance of the pumps. I think Mr. Kleppe could verify that.

Mr. ERNEST J. KLEPPE. Yes.

Mr. TAYLOR. I believe that is all I have.

Senator MALONE. Are there any questions of Mr. Taylor? We are glad to have you testify, Mr. Taylor. We will now have the

Washoe County Commissioners, Mr. Kleppe, chairman. Do you have any information to offer the committee, Mr. Kleppe?

Mr. ERNEST J. KLEPPE. I am chairman of the Board of County Commissioners of Washoe County. I would like to clear up one point that we are definitely in favor of it in the valley, the removing of the reefs at Vista and the clearing of the channel. That would be a very necessary part of the overall program. I feel that the emergency that existed there last year now exists in the channel below the reefs. We have already written to the Army engineers about it, and we are going to follow it up and see if we can't get those reefs removed and the channel cleared this year. The work the Army engineers have done certainly helped out this year. With the long-time run-off and times when the flow of the river reached 8,000 second-feet, had that channel not been cleared there would have been a great many more ranches in trouble. I want to say now to the Army engineers that we appreciate everything you have done for us. I think our Washoe County Commissioners are in favor of the Truckee-Carson Water Users' Committee report, with the few changes that are to be made, and we endorse that part of the program. But I would like to incorporate somewhere in this overall plan also the thought that we may be able to obtain the first appropriation that is made on the overall project, to remove the reefs and clear the channel, because right now it is a real emergency, and we are going to have to do something very soon, even if it is only something of a temporary nature to relieve the situation to some extent. That might be done; I don't know. I don't know of anything else.

Mr. GEORGE DEVORE. You approve the Carson-Truckee Users' Committee's report on the plans?

Mr. KLEPPE. Yes.

Senator MALONE. Thank you, Mr. Kleppe. Are the Churchill County Commissioners represented? The Douglas County Commissioners? The Ormsby County Commissioners? Then at this time we will recall Mr. Devore.

Mr. GEORGE DEVORE (engineer of the Sierra Pacific Power Co.). Mr. Tracy, president of the Sierra Pacific Power Co., who was called to Los Angeles this morning, asked me to report to the committee, for him, that he had read the report submitted by the Truckee-Carson Water Users' Committee, and that he had heard the report read yesterday at the meeting, and that he, subject to editing, approves the report and plan of development as proposed by the Truckee-Carson Water Users' Committee.

Senator MALONE. Does that complete your statement?

Mr. DEVORE. Yes.

Senator MALONE. Does anyone wish to ask any questions of Mr. Devore, in his capacity of representing the president of the Sierra Pacific Power Co.?

Mr. DEVORE. Mr. Fred Settelmeyer, of the Carson Valley Water Users' Association, was unable to attend today, and he asked me to state that he approves the report of the Truckee-Carson Water Users' Committee, also.

Mr. WILL M. BLISS (of the Lake Tahoe Water Conference Committee, and also representing the Lake Tahoe-Sierra Water Users' Committee). For the purpose of the record, Mr. Devore, I believe it is extremely important, from the point of view of flood control, to

bring out before this meeting the fact that flood control at Lake Tahoe is not considered until there is practically a full reservoir, as a matter of regulation. Now, in a state of emergency we have the right to appeal to the Federal court. In your experience, has it been necessary to call on the Federal court for permission to dump water?

Mr. DEVORE. Within my memory, three times.

Mr. BLISS. Was that permission requested before Lake Tahoe reached the height of 6,228 feet?

Mr. DEVORE. I can't remember as to the years of 1942 or 1943, but in the year 1951 the request was made before the elevation reached 6,228 feet.

Mr. BLISS. About what was the elevation?

Mr. DEVORE. As near as I can remember, the request was made when the lake was at about 6,227.25 feet.

Mr. BLISS. But, as a rule, we do not have to worry so much about flood damage at Lake Tahoe until it reaches the maximum level of 6,229.1 feet?

Mr. DEVORE. No. The procedure in preventing the level from exceeding 6,229.1 feet was outlined in the statement submitted by the Truckee-Carson Water Users' Committee yesterday, in accordance with the Truckee River agreement. I do not have a copy of that agreement before me; I have to recall from memory.

Mr. BLISS. What I am trying to bring out is this: that the question of flood control at Tahoe is generally left until the lake is pretty well filled up, from a practical point of view, with the exception of 1 year, which had excessive precipitation, for example this last year, when you and everybody else knows there was exceptional precipitation, the gates of Lake Tahoe were closed and kept closed, if my memory is correct, until sometime in January, I think it was about the 15th of January, when the elevation was 6,228 feet; the completion of the opening of the gates, I believe, was on January 26th. What I am trying to say is that some of these proposals, for instance the Reclamation Bureau's Plan No. 1, would have very little influence on Tahoe unless that was under way 4 or 5 months before flood danger, in which case they would have to start draining in November or December, to be effective at all, and in doing so they are running the risk of a dry year, when the winter precipitation would not make up the water drained, for use during the irrigation season the following year. Is that correct?

Mr. DEVORE. I think it generally is correct as to the present situation. However, I would like to enter a statement, in reply also to your first question and to a part of your last statement. I think that this statement, which may be added to make it exactly accurate, is of importance at this time. The requesting of the Federal court's permission to take water from Lake Tahoe is determined upon snow surveys. Whenever the lake level is below 6,228 feet, and the snow surveys and the anticipated normal precipitation thereafter indicate that the elevation of the lake would reach 6,230, then the gates are opened, regardless of the elevation of the lake, and water is discharged, so as to reduce the storage in the lake in such amount that the estimated elevation would be below 6,230. The rate of discharge is not necessarily, at this period, the maximum rate of flow from the lake. This statement is all based on the assumption that the Federal court has granted permission to dump the water. Now, if the lake

at this period should be over the elevation of 6,228, then, in dumping this excess water, the agreement provides that the gates shall be wide open, and the maximum discharge made as is possible. As the season goes on, and when the lake is above elevation 6,228, then the releases are based upon a maximum elevation of 6,229.1. Now, this particular year we were working on the estimate in December. We get the snow survey either on the last couple of days of December, or the first days of January. We made our estimates all within a period of 3 or 4 days; it took from 10 days to 2 weeks to get permission from the court; and the gates were opened gradually, so as not to create damage to fish and other things it might damage, on the 15th day of January. The gates were opened wider and wider as time went on and as the snow surveys came in, until they were wide open. And with this operation we have discharged from Lake Tahoe this year, roughly 400,000 acre-feet of water, to prevent the lake from rising above the stated high-water level. We haven't missed it in this method of operation since the procedure was set up in the Truckee River agreement, and that is why we feel so favorable toward this procedure.

Mr. BLISS. In operating the gates this year didn't you have a considerable margin? What I am trying to bring out is this: we probably had the heaviest precipitation last winter since 1889–90, and yet the lake only reached the elevation of 6,228.79, with a considerable margin.

Mr. DEVORE. That is correct. The committee made an error in judgment to that extent.

Mr. BLISS. I would like to bring out the fact that the precipitation in May and June this year was considerably above normal, as against the fact that we were probably very lucky in not having any extensive hot spells while the remaining snowpack was in the mountains.

Mr. DEVORE. I believe Mr. Bliss means that the precipitation during April, May, and June was subnormal, not above normal, and that the runoff from the snow was subnormal, considering the amount of water in the snow on May 1.

Mr. BLISS. That is right.

Mr. HUNT (engineer for the Bureau of Reclamation). I would like to know, Mr. Devore, when I can have your final plan, since I am including it in our report, that is your major features and things like that, so that I will not find myself leaving things out that should be included.

Mr. DEVORE. We will be very glad to submit it to you in the next few days.

Mr. HUNT. Has your committee made any cost determinations?

Mr. DEVORE. We have not. We were depending on the Bureau and the Army engineers for that. We are not equipped to make such studies.

Mr. HUNT. Has your committee made a statement as to who should pay for any part of this project?

Mr. DEVORE. Outside of the Truckee-Carson Irrigation District and the Sierra Pacific Power Co. we will have to see how much water is made available, what the costs are, and how much is allocated to each area, before we can answer that question.

Mr. HUNT. I will make this statement: the Bureau of Reclamation is analyzing this plan, along with two other plans for the same area. Since your committee does not yet know how much your plan is

going to cost and who is going to pay the money, I suggest, or recommend, that approval of any plan be left until the report is out and you find out if you can support that financially, as well as verbally. And for that reason I would like to go on record as asking all agencies to put endorsement of that plan off until such time as they can see the cost and the economics of the plan.

Senator MALONE. That would not interfere with your plans, would it, Mr. Devore?

Mr. DEVORE. No. I might add at this time that our committee, as a whole and by unanimous vote, has declared themselves favorable to the distribution of the power that is generated under this plan of development, by the existing facilities and utilities.

Mr. F. R. BREEN (representing Nevada State Fish and Game Commission, and others). May we ask some questions?

Senator MALONE. Yes.

Mr. BREEN. Mr. Devore, would it be possible for the State Fish and Game Commission to receive a copy of your plan?

Mr. DEVORE. Yes.

Mr. BREEN. Now, in the consideration of this proposed development, did the Truckee-Carson Water Users' Committee and the Sierra Pacific Power Co. consider the effect upon fish life in the Truckee River?

Mr. DEVORE. Not to a major extent.

Mr. BREEN. Does the Truckee-Carson Water Users' Committee have a definite policy in regard to fish life, in this type of project?

Mr. DEVORE. The Truckee-Carson Water Users' Committee has not discussed that in detail.

Mr. BREEN. How about the power company?

Mr. DEVORE. The power company has tried to cooperate and be helpful with the Fish and Game Commission. They have even harmed themselves financially in order to provide water past the power plants, or diversion dams. There seems to be, as far as I can see at this time, a lack of decision by the Fish and Game Commission as to the economics of this water. They probably figure out the economics as far as they are concerned, but from the figures I have heard and the facts I have seen, they seem not to consider sufficiently the economics as far as the second party is concerned. I am not making this statement in criticism; I am trying to be helpful. Now I would like to give you an example in regard to the matter. The gates at Lake Tahoe are regulated in accordance with the 1915 decree, and the court retained jurisdiction of that case, in order to see that the proper operation is carried forward. And whenever Mr. Richards releases water purposely from Lake Tahoe, at the request of the Fish Commission, and creates a flow in excess of the Floriston rates, he is violating that decree, and he is also wasting water, as far as the users are concerned along the Truckee River, and possibly wasting water as far as the users are concerned at Lahonton. This figures, during years of heavy flow when there is, we will say, 1,500 second feet in the river at Floriston, if a 50 second-feet release is made from Lake Tahoe, there is a depletion of over 100 acre-feet a day in the storage. The runoff period of a normal season might be from 60 to 90 days; that means that six to eight thousand acre-feet of water would be wasted in Pyramid Lake. We are sympathetic with trying to help the fish, and I think that goes for the committee as a whole; the statement by Mr. Dressler

last night indicated that. And I am sure Mr. Richards hasn't been overzealous in trying to stop the leakage coming out of Lake Tahoe, and has allowed water to come down, to save the fish, probably not enough to meet the desires of the Fish Commission.

Mr. BREEN. In the past few years the power company has done considerable as far as protecting the fish life in the Truckee River is concerned?

Mr. DEVORE. That is true.

Mr. BREEN. Is it also true that the power company will also maintain that same policy in these proposed plans?

Mr. DEVORE. As far as I know, that is what they will do.

Mr. BREEN. Now, did either the Truckee-Carson Water Users' Committee or the power company consider what effect, if any, the proposed plans might have on Pyramid Lake as a fishery?

Mr. DEVORE. They did, to the extent that they discussed this matter: that the diversion of water for irrigation purposes under consideration in the revised plan of the committee would deplete the flow into Pyramid Lake by 20,000 to 25,000 acre-feet, which I think was confirmed by the statement made by Mr. Hunt today. That would mean an effect on Pyramid of possibly 1 inch per year.

Mr. BREEN. Did the water users' committee and the power company, in formulating the proposed plan of development, consider whether or not this proposed plan would have any effect on the Stillwater wildlife management area?

Mr. DEVORE. That didn't come up, except as such a statement might have been made to the Truckee-Carson Irrigation District.

Mr. BREEN. Did the power company and the Truckee-Carson Water Users' Committee feel that there is any definite economic value to maintaining the Truckee River as a good fishing stream, through this area?

Mr. DEVORE. I think they do. And I think that every one of the developments that have been made provided certain benefits for the fish life. And, in referring to this, I would like to call your attention to flows in 1924, 1931, and 1934, when the Truckee River was practically dry; then developments came along, and there was an increased water supply; and, as far as my knowledge of fish is concerned, that means more life, if there is more water in the river. And unless you have more developments, unless Lake Tahoe is regulated properly, and unless you have Boca and Independence Reservoirs and Donner Lake regulated so as to maintain a good flow in the upper reaches of the river, in my opinion the fishing conditions would be much poorer than they are today, because during the late part of the season, each year, you will find from the records, if you look into them, that the flow at Iceland at numerous times in the late season, when you deduct the discharge from the reservoirs, there is a red figure, and by that indication it would mean that the river would be practically dry.

Mr. BREEN. Would your committee and the power company like to receive a written report from the Fish and Game Commission, particularly as to the effect on the fish life of the proposed plans?

Mr. DEVORE. They certainly would.

Mr. BREEN. Do you feel that fish life in the Truckee River would be protected more under your plan, or under the plan as suggested by the Bureau of Reclamation?

Mr. DEVORE. Which plan of the Bureau of Reclamation?

Mr. BREEN. Let's take plan 1, first.

Mr. DEVORE. Well, I am not familiar with the details of the Bureau's plans, because they have not as yet been completed. But unless some other arrangement is made under the Bureau's plan 1, then, as I understand it, the water from Lake Tahoe would be diverted into Washoe Valley, and not down the Truckee River. That may have some bearing on the question that you are asking.

Mr. BREEN. That is all I have to ask now.

Senator MALONE. Does that complete your statement, Mr. Devore?

Mr. DEVORE. There is something in my mind that seems to turn toward the economics of this fish question. I think everybody is sympathetic toward fish, but if there is a cost involved in order to give protection to them, who is going to stand this cost?

Senator MALONE. The Bureau of Reclamation, in recent years, has considered the matter of providing recreational facilities by the Government, in connection with these projects. What they will see in this project in that regard remains to be seen, when the various benefits will be evaluated.

Mr. DEVORE. I might call to the committee's attention that the example I tried to make out of Lake Tahoe might apply, to a lesser extent, to the other reservoirs, and if it did, then the amount of water involved would become larger. The cost of maintaining these conditions is going to be high; it is not going to be a question of $10,000 or $100,000, it is going to run, in my opinion, much higher, and I don't think that the water users should be required to foot that bill.

Senator MALONE. The improvements that have been made on the river have been of terrific advantage to the fish life. We can all remember when the channel was practically dry for weeks and weeks at a time. Starting in 1936, money was secured to build the Boca Reservoir, and arrangements were made for further storage in the lakes. I believe that we have enough information, enough has been entered into the record now—the interests are well represented—and it could very well be left to a progress report on the part of the engineers before any further data is necessary. The committee would be glad to receive any report that the Fish and Game Commission would like to submit, and to make it a part of the record.

Mr. DEVORE. I would like to add another remark, to the effect that in my opinion the improvements on the river, as a whole have been more beneficial than the disadvantages to the fish, over the past period. I think they are getting more fish out of the river now than they ever did.

Senator MALONE. There is more water than at any time during my memory.

Mr. BREEN. Senator, we will submit a statement a little later on, but for the record at this time we would like to say, gentlemen, that one thing the people interested in fish life are taking precautions against is that we will not have the same condition as occurred at the time that Derby Dam was constructed.

Mr. DEVORE. Perhaps the Fish and Game Commission people would be willing to approve and recommend the plan of development we are trying to see materialized, because I think that will be an improvement, as a whole, for the fish life.

Mr. WILL M. BLISS. There is another question I would like to ask Mr. Devore. Isn't it true that the property owners around Lake

Tahoe have never been officially or legally, parties to any court decree that has been issued for the regulation of Lake Tahoe?

Mr. DEVORE. I think that is a correct statement, legally. But I refer you to a statement made by Colonel Barton yesterday, that a certain number of Tahoe people at least approved the fixing of the high-water level.

Mr. BLISS. Colonel Barton's statement had to do only with property owners on the California side; a poll was not taken of property owners on the Nevada side. I believe his statement was that about 59 percent of those on the California side approved it.

Mr. DEVORE. I don't think that indication by the property owners has any legal bearing.

Senator MALONE. Are there any more questions to be asked Mr. Devore? If not, we will hear from Mr. A. M. McKenzie, secretary of the Nevada State Planning Board.

Mr. A. M. MCKENZIE (secretary of Nevada State Planning Board). I don't believe there is anything I would have to add to what has been said. I think the program, or project, seems to be in good hands. I am sure the members of the planning board will be glad to cooperate in any way they can to the advantage and economic development of the State of Nevada.

Senator MALONE. Who are the members of the board?

Mr. MCKENZIE. Governor Charles H. Russell, Hugh A. Shamberger, State engineer, and H. D. Mills, State highway engineer, are ex-officio members; then there are Archie C. Grant, John Scott, M. E. Lundberg, Roy Orr, C. V. Isbell, Walter Sutton, A. J. Caton—I believe that is all.

Senator MALONE. Have you anything else to add?

Mr. MCKENZIE. I don't believe so.

Senator MALONE. We will now hear from the United States Indian Service.

Mr. RICHARD B. MELLIN (range conservationist, United States Indian Service, Stewart, Nev.). We have no statement to make at this time, nor do we contemplate adding anything to the record in the immediate future.

Senator MALONE. If later you decide you would like to submit a statement, we would like to have it. Is there anyone here representing the Nevada Retail Merchants' Association? If not, we will hear from Sam Houghton, director of Civil Defense.

Mr. SAMUEL B. HOUGHTON (director of Civil Defense, Washoe County). We are interested in disaster relief, and also disaster prevention. We are concerned with disaster flood damage in Reno and the surrounding area. What we would like very much to see is the upstream storage potential increased, as it would be by the proposed Prosser Creek Reservoir, also the Stampede Reservoir. I have read the interim report of the Army engineers, dated September 1946. I think it is a fine report, and I think my committee would go along with its provisions. But I think, also, there should be most serious consideration of the Stampede Reservoir, as well as the Prosser.

Senator MALONE. We will now hear from Mr. A. E. Holgate.

Mr. A. E. HOLGATE (county engineer of Washoe County). Senator, first I would like to ask permission for the chairman of our board of county commissioners to introduce a photostatic copy of a petition prepared by the attorney for the Washoe County conservation district.

Senator MALONE. It may be entered in the record.

Mr. HOLGATE. Commissioner Raymond Capurro took an active part in this. We have two petitions, which the attorney for the Washoe County water conservation district drew up at the request of the downstream users, and I would like to offer photostatic copies of them.

Senator MALONE. They may be received.

Mr. HOLGATE. One of the petitions is signed by six downstream water users, and the other by three downstream water users on the Truckee River. The wording of the two petitions is the same, and is as follows:

Whereas there are certain reefs and sandbars in the Truckee River between Lockwood Canyon and the Glendale Bridge; and

Whereas these reefs and sandbars cause a high water table in the Truckee Meadows and cause flood conditions in the Truckee Meadows during high-water periods; and

Whereas these aforementioned conditions have caused and will cause extensive damage to property holders in the Truckee Meadows and to the city of Sparks, and make certain lands in the Truckee Meadows unusable for any purpose; and

Whereas if these reefs were removed it is believed there would be appreciable benefits to property holders in the Truckee Meadows, to the city if Sparks, the city of Reno, and Washoe County; and

Whereas the engineer of the Washoe County water conservation district is of the belief that upstream storage can be better utilized for flood protection if the aforementioned reefs are removed; and

Whereas the United States Army engineers have expressed the opinion that the removal of said reefs is necessary for the proper control of floodwaters in said Truckee Meadows and for the proper drainage of Truckee Meadows during flood stages of the Truckee River; and it is believed that it will be possible to have said reefs removed under the supervision of the United States Army engineers without cost to the parties hereto providing that the consent of the interested parties can be obtained; and

Whereas the Washoe County Water Conservation District, the North Truckee Soil Conservation District, city of Reno, city of Sparks, county of Washoe, Chamber of Commerce of Reno, Chamber of Commerce of Sparks, United Airlines Co., Nevada State Highway Department, Reno Flood Control Committee, Truckee-Carson Irrigation District, hereinafter referred to as the T. C. I. D., are agreeable to having the aforementioned reefs removed; and

Whereas it is recognized that the rights of certain parties other than those above named may be affected by the removal of said reefs, and that those rights should be safeguarded as part of said reef removal program; and

Whereas the T. C. I. D. has agreed to having the aforementioned reefs removed, subject to conditions:

Now, therefore, the undersigned hereby agrees and consents to the clearing of the Truckee River channel by means of the removal of said reefs, providing that as a part of said reef removal program such reasonable and feasible steps are taken as the undersigned deems necessary to prevent substantial injury or damage to the property or rights of the undersigned by reason of the removal of said reefs.

RICHARD BURNETTE.
HELEN MARYE THOMAS.
D. S. NICKOLICH.

Mr. HOLGATE. I would like to also go on record as reiterating the statement of the chairman of our board of county commissioners commending the Corps of Army Engineers for their work, and I would also like to go on record as extending my personal thanks to them for their fine cooperation with my office. We are very grateful to the Army engineers for all the work they performed for us in this area, and the work they contemplate and are trying to help us with now.

Senator MALONE. We now come to the Nevada State Fish and Game Commission, represented by Mr. F. R. Breen, if you have any statements for the record.

Mr. F. R. BREEN. We have several items we would like to submit for the record, and they will all, more or less, be on behalf of the various organizations we are representing here. Some will be exhibits, and some statements to be incorporated in the record. They will be submitted on behalf of the Neavada State Fish and Game Commission, Washoe County Game Management Board, Washoe Fish and Game Association, Federated Sportsmen of the State of Nevada, Fish for the Truckee, Inc., the Indian service, and Elko County Sportsmen's Association. And our first statement will be from Mr. Wes Mann, president of Fish for the Truckee, Inc.

(The matter referred to follows:)

STATE OF NEVADA,
FISH AND GAME COMMISSION,
Reno, Nev., September 30, 1952.

Hon. GEORGE W. MALONE,
United States Senator, Reno, Nev.

DEAR SENATOR: The Nevada Fish and Game Commission takes pleasure at this time in presenting a written document and other information to be attached to, and become a part of, the testimony of the recent subcommittee of the Committee on Public Works, United States Senate hearing, held in Reno, Nev.

The Nevada Fish and Game Commission and the other sportsmen's organizations listed below have joined for the purposes of representation before the subcommittee of the Committee on Public Works, United States Senate. These groups desire to be considered as having been represented at the recent hearing just past and wish to be considered as a group in the future. Their representatives in the past have been Mr. Francis R. Breen and Mr. Stanley H. Brown. It is planned that these two gentlemen will continue to represent the below listed organizations in the future. As a matter of record I submit herewith the names of the interested groups represented by the above-named men:

Nevada State Fish and Game Commission
Washoe County Game Management Board
Washoe Fish and Game Association
Fish for the Truckee, Inc.
United States Indian Service
Nevada Federated Sportsmen
Elko County Sportsmen
Battle Mountain Rod and Gun Club
Smith Valley Rod and Gun Club
Douglas County Sportsmen's Club
Boulder City Sportsmen's Association
Churchill County Fish and Game Association
White Pine County Fish and Game Association
Moapa Valley Sportsmen's Association
Nye County Fish and Game Association
Mineral County Sportsmen's Organization
Las Vegas Sportsmen's Association
San Francisco Fly Casting Club
Truckee Sportsmen's Association
Ormsby County Sportsmen's Association
Humboldt County Rod and Gun Club
Pershing County Rod and Gun Club

It has become the duty of the Nevada Fish and Game Commission to keep the above listed organizations posted as to the progress of the Corps of Engineers, Bureau of Reclamation, and the Water Users Committee. The aforesaid sportsmen's organizations, in turn, are forwarding to us detailed reports as to the economic value of the Truckee River as to actual money spent for fishing equipment, the approximate amount spent in hotels, motels, and other establishments by fishermen in this area.

I am certain that the Senator will realize that to compile such a report requires long and tedious work. Such being the case, we would like to have permission to submit these reports to the Senator as they are forwarded to us.

Hoping that our method of procedure in this matter will meet with your approval and that of the Subcommittee on Public Works, I am,

Most sincerely,

FRANK W. GROVES, *Director.*

STATEMENT OF THE FISH AND GAME COMMISION OF THE STATE OF NEVADA

The Nevada State Fish and Game Commission is of the belief that the protection, maintenance, and possible improvement of the recreational, wildlife, and fisheries resources of the Truckee River and its tributaries is imperative. It feels that any and all sponsors of any and all proposed works on this river and its tributaries should consult with the Nevada State Fish and Game Commission during planning stages. Not to do so will seriously jeopardize the continuance of the recreational wildlife and fisheries resources of the areas involved. To so jeopardize these resources or to in any way destroy or damage them would be a great loss to the people of the State of Nevada.

The Nevada State Fish and Game Commission feels that it is impossible to make detailed recommendations at this time for the protection of these due to the preliminary status of the plans as they now exist. However, the Commission feels that even at this time it is apparent that the resources of this area are in jeopardy, consequently steps should be taken at this time to prevent any unrepairable damage.

These steps, among others, will include the establishment of adequate minimum flows in the Truckee River to prevent the loss of valuable water for fisheries. To further reduce losses it may be necessary to screen diversions, and where diversion dams impede the natural migrations of fish, suitable fishways should be provided. Water temperatures and sudden changes in streamflow must also be considered. These are but a few of the problems that will arise, but as aforesaid, the Commission does not feel that it can make recommendations in such preliminary stages of planning.

The fact that it is possible to complete certain plans without crossing the Nevada-California State line on the Truckee River does not greatly alter the position of the Nevada State Fish and Game Commission. The effect of upstream storage on Pyramid Lake and minimum flows on the lower Truckee River have to be taken into account. Consideration must be given the migratory tendencies of the fish that now inhabit the Truckee River. The possible increase in fishing pressure in Nevada due to the destruction of suitable fishing areas in the California sections of the Truckee River might well be tremendous. Financial loss to this general area and the commission through the impairment of our fisheries might well be serious. Here again, the commission does not feel that it can give recommendations at such an early time.

In conclusion, the Nevada State Fish and Game Commission recommends to the subcommittee and the Committee on Public Works, United States Senate, that the sponsors of any water-development program on any river, stream, or lake that is in Nevada or adjoins Nevada, be requested to consult with this commission during the planning stages so that the measures and recommendations for the protection or possible improvement of the recreational wildlife, and, fisheries resources can be adequately formulated.

Mr. WES MANN. I am Wes Mann, president of Fish for the Truckee, Inc., a nonprofit organization, organized by a group of sportsmen of this county, that felt Washoe County needed a little bit of a boost in sportsmen's activities, by producing better fishing in the Truckee River. We have for your record 1 of 5 advertisements that were given to us in an all-out program to encourage tourist trade and business in Washoe County; also an editorial of the Nevada State Journal, on February 27, 1952.

Senator MALONE. You submit those as exhibits?

Mr. MANN. Yes.

Senator MALONE. They will be received.

Mr. MANN. From the standpoint of the businessmen of Washoe County going with us in our efforts, having just been established last fall, this corporation has received $7,280 in voluntary contributions from banks, business houses, and individuals in Washoe County. In 1951 Washoe County issued 6,921 fishing licenses; that has been increased approximately 20 percent this year. A fisherman spends approximately $310 each year.

Senator MALONE. What is the price of a license?

Mr. MANN. A nonresident license is $50, and we have a 5-day tourist license for $3.50. In 1951 the nonresident licenses issued numbered 419, and the 5-day tourist licenses 138. In 1952, as of today, the total of nonresident and 5-day permits is 507. Now, we have planted 17,000 fish in the Truckee; this is in addition to what the fish and game commission are planting in this area. And the sportsmen who come in here spend a minimum of $40 a day, just for their subsistence and equipment. We feel that by continuing this program a great deal of additional business will come into this area. We have applied to the United States Treasury Department for tax exemption of the contributions made to our corporation, and received this letter in reply; the final analysis of the letter is: "Accordingly, contributions used for such purposes may be deducted by the donors in computing their net income." According to an article in the Red Book magazine, in Arkansas last year fishermen caught 430,000 fish and spent $5 million; that is the kind of business we would like to go after. We still have a couple of thousand dollars to spend, and the fish are available, but the shortage of water makes it rather ridiculous to try to plant them, because they will only accumulate at power dams. What we need is more water in the river during this time of the year.

Mr. BREEN. Do you have the total amount estimated to have been spent by fishermen who have purchased those licenses you told us about?

Mr. MANN. The fishermen have spent $3 million, based on our licenses issued in 1 year; that is based on the figures in Nation's Business—$2,161,000 in Washoe County.

Mr. BREEN. What was the size of the fish planted in the river?

Mr. MANN. They were larger than 10 inches; in fact, they were too large to put in the little riffles that ran below the powerhouse; in many cases they ran up to 16 inches.

Senator MALONE. Are there any other questions of Mr. Mann?

Mr. BREEN. We will call Tom Trelease.

Mr. THOMAS J. TRELEASE. I would like to make it clear that our intentions are not to object to flood control or to irrigation and power development, as long as they do not injure our sport fisheries. What we see in this project is that additional water will be developed for interests other than fish and game interests, and we feel that the fish and game interests, should have and are entitled to a part of our water in Nevada. We realize there are tremendous costs being put before the general public today to support the reservoirs, canals, etc. Mr. Devore asked us if we would be willing to say we approve their report. Now I would like to ask Mr. Hunt, or any others that might have that information, what would the cost be to the Nevada Fish and Game Commission.

Senator MALONE. Do you have any information that would throw light on that subject, Mr. Hunt?

Mr. HUNT. I think so. The Fish and Wildlife Service tells us what is needed, and then they tell us the benefits that might accrue from it. They do put a valuation on fishing, the cost of the water; the cost would depend on whether or not it could be used for another purpose; it is very difficult to determine. For example, up in the upper Truckee, where we could probably catch it and reregulate it later for fish and other purposes, it would not be nearly as expensive as water below Derby Dam or near Pyramid Lake, where it is not useful for

other purposes, except, perhaps, some recreation around the lake. The price varies with where and how much water is used.

Mr. TRELEASE. Suppose we asked for water in the upper stretch of the river, that is, between the diversion from the Truckee and where the water returns to the Truckee, what would the cost be for us? That would be in California.

Mr. HUNT. There, again, I cant' give you a dollar-sign figure. I would have to figure it out; I couldn't do it here at this time.

Senator MALONE. Why couldn't you ask your questions and leave the questions open, and, since the committee is going to recess, rather than adjourn, maybe Mr. Hunt would be able to give you some preliminary information within a few weeks, after they arrive at some specified combination of projects; perhaps then they can be answered specifically, in the hearing that will be conducted?

Mr. TRELEASE. All right, Senator. If we could request from these agencies that they submit to the Fish and Game Commission the cost in the upper part of the Truckee River, in California, to the Fish and Game Commission and also to the other water users; also in the lower Truckee River, below Derby Dam. We would like to know the cost per cubic foot of water to be used in those areas. We feel that fishing is an economic resource, and we shouldn't pay for the water we ask for, or intend to ask for. There is a tremendous value in Pyramid Lake, for instance, that would affect service stations and a host of other businesses, and we feel that that would be an exceptional value to be applied to the cost of any water we might ask for. Even today, with the lake entirely dormant as far as fishing is concerned, we are getting a tremendous revenue from fishermen. Also, on the Truckee River irrigation and other interests have decreased its flow. Certainly the river is large enough to support the host of fishermen we have today. The flow has decreased to the extent that it has decreased the carrying capacity for fish life.

Senator MALONE. I suppose you are familiar with the flow of the river before the construction of the Boca Reservoir?

Mr. TRELEASE. I have some data on that; yes. We can show losses that would be material, can show losses beyond what they were before Boca. We do know this: There was more fish life in the Truckee River prior to most of these developments; a lot of them died. We would like to see the fisheries advance, and not take a backward step. And in the event this project goes through, we would like to see whatever water we do receive for fish life set aside permanently, to be inviolate, and not subject to be encroached upon by other interests. I think that is all I have to say.

Senator MALONE. Thank you, very much.

Mr. F. R. BREEN. The position of the various organizations I represent in this hearing is that they are not opposed to flood control or irrigation and power developments, but they want to be sure that the fisheries in this area are given proper consideration in formulating any plans to be put into effect. You will understand the fear that has existed and does exist, in view of the fact of what occurred when Derby Dam was constructed. For the record, I would like to read part of the Bureau of Reclamation's report, the same report from which I read heretofore, page 142, the third paragraph; in discussing the four major streams, the Carson, Truckee, Walker, and Humboldt Rivers, this statement is made: [Reads.]

Mr. HUNT. I think that part of the report was submitted by the Fish and Wildlife Service.

Mr. BREEN. Yes. Also, on page 145, paragraph 4, of the same report, it is stated: [Reads.] As I said before, it is not the intention of any of the organizations we represent to oppose, in any manner whatsoever, flood control or power or irrigation projects. In view of the fact that this hearing is about to recess, we would like to submit additional reports as to the actual economic value of the fishing in this area, among other things the actual gross income to this area, the actual expenditures for hunting and fishing equipment and tackle, and other information pertaining to the actual aspects of the industry in this area.

Senator MALONE. You may submit that.

Mr. BREEN. That completes our statement at this time.

Senator MALONE. Thank you, very much. We will now hear Mr. Emory C. Branch, of the Truckee River Improvement and Flood Control Committee.

Mr. EMORY C. BRANCH. The name of the committee is the Truckee River Improvement and Flood Control Committee. The chairman is Mr. Joseph McDonald, with myself as vice chairman and secretary. The other members include 23 of a cross section of the technical and business knowledge in the area; I have a list of them, which I will be pleased to submit to you, if requested. The activities of this committee have been threefold: 1. We have set up, under the leadership of Prof. Vincent Gianella, the River Prediction Subcommittee; that is the committee that makes predictions of dangerous water conditions, and so forth; this committee also acts in an advisory capacity and as our emergency flood-control committee; this committee considered such matters as the replacement of the Wingfield dams, leveling of the reefs, channel clearing, and so forth. We discussed all those matters, particularly the removal of the reefs. We have attempted to investigate all the possibilities. In the case of the Wingfield dams, the design of those dams was made, I inspected them, discussed it with the committee and the Army engineers, then went ahead with it. The overall cost of replacing the two structures at Wingfield Park was $25,000, which includes the bypass during the time the dams were replaced. Another function of this committee has been to call frequent meetings over the past year and a half, and we appreciate the fact that you, Senator, have attended many of our meetings. Our committee is very pleased to know that the Truckee-Carson Water Users' Committee now have their comments in. I haven't had a chance to study them, but I am sure our committee will be very glad to see them and go over them. Our committee has submitted no comments. I might say that if we had, our comments would tie in very closely with those of the city of Reno.

Senator MALONE. Have you had any contracts with the Truckee-Carson Water Users' Committee?

Mr. BRANCH. Yes. Mr. Devore has attended practically all of our meetings. But our committee, as a whole, doesn't know what things there are in their report; we haven't a copy, yet, of the written report.

Senator MALONE. Have you had any report from the Bureau of Reclamation?

Mr. BRANCH. No, we have had no report from them. At one time Mr. Hunt did attempt to arrange a meeting with us, but we couldn't schedule it.

Senator MALONE. As a matter of fact, during this hearing is the first time you have had an insight into it?

Mr. BRANCH. Yes. We have known all along there was only one way to start it going, and that was to get these comments in.

Senator MALONE. No reports have been submitted, at all?

Mr. BRANCH. The only official report is that of the city of Reno. The city of Reno did send in its official comments. We have none from the other agencies that are involved most deeply in the flood-control plan.

Senator MALONE. Do you have any further information to offer to the committee?

Mr. BRANCH. We are very interested in flood-control protection. This year Boca reservoir reached its overflow about April 25, as I remember; the inflow greatly exceeded the outflow. And even though it was our intention, and that of everybody concerned, to keep Boca empty for the big runoff period it wasn't possible; by April 25 it had 26,000 acre-feet in it. So we want that carefully investigated. One of the functions of our committee has been to coordinate all the local interests into getting their reports in.

Senator MALONE. This is the first time any reports have been rendered?

Mr. BRANCH. This is the first time, with the exception of the city of Sparks and the city of Reno. All the other reports came from groups represented by the Truckee-Carson Water Users' Committee. I think It would be our next step for our committee to review their plan, and I think Mr. Devore should go over it with us, and we should take some action on it.

Mr. DEVORE. It seems to me that the county commissioners of Douglas County and Churchill County approved it.

Senator MALONE. Up to now no copies of the Truckee-Carson Water Users' Committee's comments have been submitted?

Mr. DEVORE. No comments submitted to anyone, in writing.

Mr. BRANCH. I would be very glad to have our committee meet with Mr. Devore on that, and either submit our approval or disapproval.

Senator MALONE. Is there anyone else that would like to be heard before we recall Mr. Hunt? Mr. Hunt, will you take the witness chair again?

Senator MALONE. Mr. Hunt, before we ask for questions generally, I would like to ask you a few questions in regard to the power supply under the plans you have submitted, all of them tentative. There will be a considerable amount of power produced under any one of the plans?

Mr. HUNT. That is correct.

Senator MALONE. Under plan 1 approximately 324 million kilowatt-hours annually, with a load factor of 59 percent; under plan 2, 257 kilowatt-hours annually, with a load factor of 59 percent; and under plan 3, 145 million kilowatt-hours annually, with a load factor of 47 percent?

Mr. HUNT. Yes.

Senator MALONE. Also, an additional power supply from the Central Valley District of California has been allocated to Nevada?

Mr. HUNT. That is correct.

Senator MALONE. Thirty-three thousand kilowatts of power has been allocated definitely, and we feel there will be further power allocated to Nevada from Shasta Dam, as a matter of fact up to 90,000 kilowatts, but there is no definite figure as yet, when the Folsom Dam power comes in in 1954. And it was testified yesterday power would be available in the future from the Central Valley project, from further developments on the American River, Trinity River, etc., and it has been established that Nevada would have a chance to secure a fair share of the power from those projects. Now, considering that that is a fact, how could the power becoming available under one of these plans be integrated with the present power supply and future power secured from the Central Valley project?

Mr. HUNT. Well, to begin with, it is all problematical; we can't see into the future. The power should be available over there in the immediate future, and could probably be integrated into this State. Now, if power is developed by any one of these plans, that power could increase the flow over here, or the power from that project could pick up the increased demand that is coming into the area, in which the demand, over a period, shows a continued growth; the development of our project should take care of it for some time. Ultimately, we can see that very probably the development in this area, particularly if there is power available, will exceed the total production possible under any one of these plans. When that condition happens, then again, you would have to have power from another source. So you could have it flowing back and forth; the details of that would have to be worked out.

Senator MALONE. In other words, in order to procure the maximum benefit from the power developed, it must be integrated with the power supply already secured?

Mr. HUNT. I think that would be true. We would have considerable secondary energy under any one of these plans.

Senator MALONE. Now, take any public agency, such as the Nevada Colorado River Commission, if it showed the necessity to draw power from a project, it could have it; that is correct, isn't it?

Mr. HUNT. That is correct.

Senator MALONE. Are there any questions anyone else would like to ask Mr. Hunt?

Mr. F. R. BREEN. Mr. Hunt, what is the policy of the Bureau of Reclamation in reference to the effect upon fish life in projects of this type?

Mr. HUNT. It is the policy of the Bureau to include, in any of its authorized reports consideration by the Fish and Wildlife Service the effect of the project involved upon the fish and wildlife, in a separate report, which is added to our report. This applies not only to our regular report, but any additional reports. For example, I can cite an instance in a project I worked on, namely, the Weber Basin project. That borders Salt Lake, and there was a Fish and Wildlife migratory bird refuge. It had been depending on floodwaters and the right to 50 second-feet, but had no control of floodwaters. We debated the problem, and the Weber Basin project, as authorized, was so designed that the reservoirs would afford additional water for that refuge. Generally speaking, we give consideration to fish and wildlife in every case. As you will recognize, we have problems; you want water, the

irrigation interests want it, and power wants it. Somewhere we can work out the wants and needs, or arbitrate them. The thing is to get a maximum benefit to all. We actually construct certain features for fish and wildlife protection.

Mr. BREEN. In setting up your plan No. 1, has your organization reached any conclusions as to the effect on fish life in the Truckee River?

Mr. HUNT. We have considered that in each of the plans. However, we have not gone into details, because it would be difficult to work them out. We have frequently consulted with the Fish and Wildlife Service, and have talked with the California Fish and Game Department. With respect to the Nevada Fish and Game Commission, I have not personally gone over the area with Mr. Trelease. We recognize and are very aware of the fish-and-game situation. It is a live issue wherever we go.

Mr. BREEN. Are you prepared at this time to give us any general conclusions as to the effect of these three plans on the fish life in the Truckee River?

Mr. HUNT. I am not. I would prefer to wait for comments from the Fish and Wildlife Service. Normally, we could not have their comments until another 2 or 3 weeks, and I would prefer to give the answer at that time.

Mr. BREEN. Would it be possible to include a report from our own State fish and game commission in your report?

Mr. HUNT. The normal thing would be to include only the Fish and Wildlife Service's report. However, they contact both the State fish and game agencies involved, and get their comments.

Mr. BREEN. Well, assuming that you received a report and information from our State fish and game commission, direct, would you be able to get it into your report?

Mr. HUNT. You are getting into a policy that my region sets. We have found that we can handle it better by going through the Fish and Wildlife Service; we find they are better arbitrators of those things than we are. Most reclamation engineers are primarily interested in irrigation; we do have interest in fish and wildlife, but not primarily. It is primary with the Fish and Wildlife Service.

Mr. BREEN. Reading again from the Bureau of Reclamation's Lahonton Basin Report, previously read from, on page 144 it states as follows. [Reads.] Then in paragraph 4 it states. [Reads.] Now, would you care to comment as to the effect of your plans 2 and 3 on fish life in the Truckee River, in connection with that conclusion?

Mr. HUNT. I fear that in this particular case the Fish and Wildlife Service had not considered the hydraulics in that area. Since that report was written there has been a refuge constructed down there. Practically all the water for the refuge, and a good deal going into the Stillwater area, in normal years comes from the return flow from the Newlands project, therefore the return flow will be sufficient to maintain them. These plans that we are now considering do not take any water away from the Newlands project. We have discussed this, both with the Newlands project and the wildlife people down there, and feel that it will not be detrimental. I think that un-

controlled flows going into the Stillwater area are as detrimental to the area as a reduced flow would be. I think that most of those areas require a pretty uniform flow.

Mr. BREEN. Your opinion is that your plans as presented would not adversely affect that refuge?

Mr. HUNT. That is correct.

Mr. BREEN. What is your opinion as to the rehabilitation of Pyramid Lake in connection with your plans?

Mr. HUNT. Plan No. 1 would reduce the flow into Pyramid Lake, and plans No. 2 and No. 3 would also reduce the flow a small amount. Conversely, it would also be possible to stabilize the flow through the river somewhat, in that we would knock off the peaks of some of the disastrous floods, and prevent a flushing out of local areas. The final effect would not be material, I believe. We are still working on the possibility of developing some flow into Pyramid Lake, so its fish can spawn, anyway up to Derby Dam, if it could be worked out with other interests. It is one of our objectives, to restore the fishing in that area.

Mr. BREEN. That is all I have to ask.

Mr. DEVORE. Mr. Hunt, referring to the delivery of power from the power plants, such power is subject to withdrawal by preference customers?

Mr. HUNT. I believe that is right.

Mr. DEVORE. It is my understanding that the Sierra Pacific Power Co. comes in the fifth class. I presume that you realize and know that utility operations cannot depend on a temporary power supply, unless they have some other source to be supplied from.

Mr. HUNT. That is right.

Mr. DEVORE. So that the power, under the present testimony here, couldn't be utilized by a power company 100 percent?

Mr. HUNT. I would not say 100 percent. Under present conditions it could not be.

Mr. DEVORE. What do you mean by "present conditions"?

Mr. HUNT. I would say you should have a contract for a flexible amount of power. That would be possible, I think.

Mr. DEVORE. We believe that the resources of our area should be retained for the use and requirements of the demands of this area; we do not believe those resources should be sent to any other area. And we ask the committee to look upon the power situation, not as to the overall situation over the country, but as to the local conditions involved.

Senator MALONE. Of course I am only one member of the committee, but I am sure every consideration will be given to any agreement among all the water users and the interested parties in the area. Are there any further questions of Mr. Hunt? Have the Army engineers anything further to present? Then we will now recess the hearing, subject to the call of the chairman of the Public Works Subcommittee.

(Additional statements received are as follows:)

RENO CHAMBER OF COMMERCE,
Reno, Nev., November 6, 1952.

SENATOR DENNIS CHAVEZ,
Chairman, Committee on Public Works,
United States Senate, Senate Office Building, Washington, D. C.

DEAR SENATOR CHAVEZ: In December 1950, shortly after the disasterous November 20 flood in this area, a committee, known as the Truckee River Improvement and Flood Control Committee, was formed by the Reno Chamber of Commerce to press for flood protection and act as an advisory committee to the city of Reno on river-control problems. This committee is composed of representatives of the water users in this area, property owners in the downtown business area, and technical representatives from the University of Nevada and local engineering firms. Mr. Joseph F. McDonald, publisher of the Nevada State Journal, was named chairman and Mr. E. C. Branch, city manager, vice chairman and secretary.

One of the major objectives of this committee was the study and completion of comments on the 1946 interim report by the Army engineers for the Truckee River. This committee is familiar with the comments submitted by Mr. George C. Devore, chairman of the Truckee-Carson Water Users Committee. Mr. Devore also is a member of this committee and has presented the views of the Truckee-Carson Water Users Committee on several different occasions.

The Truckee River Improvement and Flood Control Committee wishes to approve generally the statement and plan of the Truckee-Carson Water Users Committee as submitted before the Subcommittee on Public Works, United States Senate, at the hearing in Reno, Nevada, August 26, 1952, with the proviso that any plan finally approved shall contain the stipulation that the existing fisheries in the streams affected should be maintained at their present levels, and all such projects should, for the maintenance of the fisheries, provide adequate facilities consisting of sufficient water flows at proper temperatures, fishways, and fish screens. In determining the effect of such projects on existing fisheries, and in determining what safeguards and facilities are required, the opinions and recommendations of the fish technicians and biologists of the Nevada State Fish and Game Commission should be followed.

The approval, as outlined in paragraph 3 of this letter, received unanimous concurrence by the members of the board of directors of the Reno Chamber of Commerce at a regular meeting, held Wednesday, October 22, 1952.

Very truly yours,

WILLIAM BRUSSARD, *General Manager.*

RESOLUTION OF THE CITY OF FALLON, NEV.

Upon motion of Councilman Foster, seconded by Councilman Stewart, the following resolution was unanimously adopted:

"Whereas the city of Fallon has received a copy of the Truckee-Carson Water Users Committee Suggested Plan of Development of the waters of the Truckee and Carson Rivers for irrigation, flood control and power purposes, as submitted at a hearing held in Reno, Nev., on August 26, 1952, before a subcommittee of the Committee on Public Works, United States Senate; and

"Whereas the city has been advised that the Truckee-Carson Water Users Committee intends to submit the abovementioned plan to the Corps of Engineers as the committee's comments on, and suggested amendments to, the 1946 interim report by the Army engineers on the Truckee and Carson Rivers; and

"Whereas the city considers that the adoption of the abovementioned suggested plan of development as recommended by the Truckee-Carson Water Users Committee would be beneficial to this community as well as to the remainder of the area served by the Truckee and Carson Rivers: Now, therefore, be it

"*Resolved*, That the City Council of the City of Fallon, State of Nevada, hereby endorses the said Truckee-Carson Water Users Committee Suggested Plan of Development."

I, Betty Mills, the duly appointed, qualified, and acting city clerk of the city of Fallon, do hereby certify that the above and foregoing is a full, true, and correct copy of a resolution unanimously adopted at a regular meeting of the City Council of the City of Fallon, State of Nevada, held at 7:30 o'clock p. m. on Tuesday, December 16, 1952, at which meeting a quorum was present.

WITNESS my hand and the official seal of said city, this 18th day of December A. D. 1952.

[SEAL] BETTY MILLS, *City Clerk.*

CITY OF RENO,
OFFICE OF THE MAYOR,
Reno, Nev., October 17, 1952.

Hon. GEORGE W. MALONE,
Reno, Nev.

DEAR SENATOR MALONE: I am enclosing herewith original and copy of letter to Senator Dennis Chavez, chairman, Committee on Public Works, United States Senate, Washington, D. C., containing excerpt from the minutes of the Reno City Council under date of October 14, 1952, which sets forth the council's action on the report of the Truckee Carson Water Users Committee.

I will appreciate it if your office will make this letter a part of the transcript and include same with the submittal to the proper authorities in Washington.

Thanking you for your continued cooperation in this matter, I remain,

Sincerely,

F. R. SMITH, *Mayor.*

RENO, NEV., *October 17, 1952.*

Senator DENNIS CHAVEZ,
Chairman Committee on Public Works,
United States Senate, Washington, D. C.

DEAR SENATOR CHAVEZ: This is to inform you that the following is an excerpt from the minutes of the Reno City Council in regular session on October 14, 1952, and which I believe is self-explanatory:

"On the matter of flood control, Mayor Smith stated that the council had been furnished with a copy of a plan submitted by the Truckee Carson Water Users Committee, and that the committee is anxious for a motion or resolution favoring the plan, whereupon it was moved by Councilman Guisti, seconded by Councilman Cowen, that the council endorse the report of the Truckee Carson Water Users Committee and requests that consideration be given by all interested parties to the facts that were brought to the attention of the Army Corps of Engineers in our letter of July 11, 1952, wherein we stated 'We therefore believe further study should be given to the construction and operation of Prosser Reservoir with the idea in mind of providing additional storage and flood control to that proposed in your report which when integrated with the operation of Boca and the proposed Stampede Reservoir would provide the ultimate in protection and water conservation for this area. However, the city of Reno will not oppose the Prosser-Lake Tahoe storage transfer plan as now proposed if present-day costs show that it is justifiable.' Motion carried by the following vote: Ayes: Councilmen Ligon, Semenza, Cowen, Harvey, Bankofier, Guisti."

Very truly yours,

F. R. SMITH, *Mayor.*

CITY OF RENO,
Reno, Nev., August 28, 1952.

Hon. GEORGE W. MALONE,
United States Senator, Reno, Nev.

DEAR SENATOR MALONE: Attached is the membership of the Truckee River Improvement Flood Control Committee to be included along with my statements at the flood-control hearing August 26 and 27.

Very truly yours,

E. C. BRANCH, *City Manager.*

TRUCKEE RIVER IMPROVEMENT AND FLOOD-CONTROL COMMITTEE

Joseph F. McDonald, chairman, Nevada State Journal
E. C. Branch, vice chairman and secretary, Reno city manager
Elliott R. Cann, Reno city engineer
F. R. Smith, mayor of Reno
C. C. Taylor, water conservation district
Tate Williams, Nevada Retail Merchants' Association
William Brussard, Chamber of Commerce
John Sanford, Reno Evening Gazette
Phil Cowgill, Sierra Pacific Power Co.
George Devore, Sierra Pacific Power Co.
Prof. Vincent P. Gianella, Retired (University of Nevada)
Edward W. Pine, Associated General Contractors

Eugene Shephard, United States Weather Bureau
Ernest Kleppe, Washoe County Commissioner
Ivan Sack, United States Forest Service
Clyde Houston, Soil Conservation Service
Lester Hilp, property owner
William Sanford, property owner
Charles Mapes, property owner
George Wingfield, Jr., property owner
H. B. Richards, Truckee-Carson Irrigation District
William Cashill, legal
John Robinson, legal
John Spann, Sparks city attorney

NORTH TRUCKEE SOIL CONSERVATION DISTRICT,
Reno, Nev., September 8, 1952.

Hon. GEORGE W. MALONE,
United States Senate, Washington 25, D. C.

DEAR SENATOR MALONE: Enclosed is a ststement in quadruplicate, expressing the opinions of the board of supervisors concerning serious local agricultural problems. As you indicated to Mr. DePaoli at the Reno hearing, this statement might appropriately be included in the record of the recessed subcommittee hearing at Reno, Nev., August 26 and 27, 1952.

We should appreciate having a transcript of the record of the hearing when it is available.

As you are doubtless aware, our district is a legal governmental unit of the State of Nevada. The lands of the district now include the portion of East Truckee Meadows lying between the Truckee River and the south boundary of T. 19 N., R. 20 E, in addition to the area shown on the enclosed map.

Very truly yours,

HAROLD DEPAOLI, *Chairman.*

The duly elected and qualified supervisors of the North Truckee soil conservation district, representing 136 farm and ranch owners in the district, present the following statement to supplement testimony given in a hearing conducted by a subcommittee of the Senate Committee on Public Works at Reno, Nev., August 26 and 27, 1952.

A. Damage caused by abnormally high flows of Truckee River in occasional years

1. *Inundation.*—Of about 6 square miles of crop-land and pasture land in East Truckee Meadows and on ranches along the river between Vista and Pyramid Lake.

Water remains on the land for several weeks, delaying cultivation and planting operations until the season is too short for production of annual truck and grain crops; killing alfalfa, clovers, and other perennial forage plants; making pasture land inaccessable and unusable for much of the summer grazing season. This inundation prevents adequate drainage of farmland for long periods after flood stages of the river have receded.

2. Erosion and bank-cutting destroys a considerable acreage of valuable agricultural land and caused extensive damage to irrigation structures, ditches, roads, and fences.

3. Deposition of sand, gravel, and debris destroys crops; necessitates costly clearing and leveling of fields and rehabilitation of irrigation systems.

4. Damage is caused to buildings, livestock, implements, domestic water supply and sewage-disposal systems.

B. Annual damage

1. Because of the obstructed condition of the river channel between Asylum Bridge and Pyramid Lake, damage occurs even in years of normal snowfall and river flow. All the items listed above occur to a lesser extent and would not be entirely eliminated by upstream storage and regulation.

C. Drainage

Drainage of the entire East Truckee Meadows necessary to improve better yield and quality of agricultural crops, is not now possible due to the so-called reefs and other obstructions in the river channel.

The farmers and ranchers of this soil conservation district recommend:

1. An appropriation of funds now available under present Federal legislation, of $50,000 per year for 3 years for clearing and snagging of the river channel from Glendale Fridge to Pyramid Lake and reclearing of the channel from Asylum Bridge to Glendale Fridge. This river cleaning is needed immediately and should not be delayed pending completion of plans and specifications for the upstream phases of proposed projects. After such clearing adequate standards should be set and authority and responsibility delegated to proper authorities for maintenance of said channel to these standards thereafter.

2. That any long-range storage and flood-control plan undertaken give due assurance of continuing existing irrigation rights and take into account probable future drainage of the East Truckee Meadows. Also assurance should be given to local water users for full control of existing water rights on any rights acquired later. Such drainage will necessitate a stable supply of late season water to service the improved type of agriculture possible on these lands after drainage has been accomplished.

TRUCKEE PUBLIC UTILITY DISTRICT,
Truckee, Calif., August 26, 1952.

Senator DENNIS CHAVEZ,
Chairman, Committee on Public Works,
Reno, Nev.

DEAR SENATOR: The Truckee Public Utility District is a political subdivision of the State of California embracing an area of 44 square miles, located along the Truckee River and the shores of Donner Lake, with a permanent population of approximately 1,500 and a seasonal population of over twice that number.

The district owns and operates the electric and water systems serving the community of Truckee and vicinity.

In this section of the Sierra-Nevada Mountains the greatest snowfall of record in the United States is consistently recorded each year and a very considerable amount of the runoff from this heavy snow pack flows down the various water courses and disappears yearly in the desert area of northwestern Nevada, periodically doing considerable damage during the flood stage.

In addition to the flood damage along the Truckee River is the much greater economic loss occasioned by the lack of the utilization of the power that can be generated by these floodwaters in their over 1,500 foot descent from Lake Tahoe to the vicinity of Reno, a distance of 50 miles.

In the watershed of Lake Tahoe and the Truckee River there are several excellent sites for the storage of these floodwaters.

The area of eastern California and northwestern Nevada has long suffered from high power rates, largely occasioned by the expensive construction and maintenance of power over long distances from the west side of the mountains through difficult snow-covered mountain terrain.

With the ultimate use of the waters of the Truckee, Carson and Walker Rivers, much of the present import of power from the central California region would be eliminated, and this area would profit from a closer and cheaper source of energy.

We who are in the counties of origin of these waters of Lake Tahoe and the Truckee River consider these waters among our most valuable assets and are earnestly desirous of seeing its multiple purpose usage developed at an early date.

Since the passage of Public Act 761 by the 75th Congress numerous investigations and studies have been carried out by both the Army engineers and the Bureau of Reclamation and there is now before your committee definite proposals for the storage and utilization of the floodwaters of this area; this district now urges that your committee give favorable consideration to proposing the speedy enactment of legislation authorizing the building of the necessary projects along the Truckee River to the end that the potential multiple benefits which should accrue be made available to all concerned.

C. EDMUNDS, *Manager.*